LBMA

Alchemist

The London Bullion Market Association ISSUE 53 February 2009

In this issue

The lightnings flash from pole to pole;
Near and more near the thunders role
From Tam O'Shanter, Robert Burns

Amidst rough seas and stormy skies the precious metals market holds to her course. LBMA Vice Chairman Martyn Whitehead reflects on stability in the Editorial Comment.

Ru Ir

The Art of Precious Metal Transformation™

Ag Os

Knowledge

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

Innovation

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

Au Pd

Vision

PAMP®
Produits Artistiques Metaux Precieux

Rh Pt

LBMA
GOOD DELIVERY
REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: + 41 91 695 04 50 e-mail: info@pamp.com
fax: + 41 91 695 04 51 web: www.pamp.com

After the Goldrush

What Drives Investor Demand Today?

By Suki Cooper, Commodities Research Analyst, Barclays Capital

Gold's quickstep with $1000 in 2008 was not a chance meeting. The first steps in this dance were taken several years ago, with the introduction of new avenues to gain exposure like ETFs, bringing the metal back into vogue with investors. Last year, gold not only breached the all-time nominal high set in January 1980, but also set a record annual average high. Investment demand is still taking the lead in 2009. This article examines some of the tunes to which gold investment dances, and which is most likely to put on the moves in 2009.

During March 2008, not only were exogenous factors neatly aligned, but the metal's own fundamentals had become favourable. Mine supply has disappointed for a number of years, despite prices reaching record highs. The European central banks' Gold Agreement has been a successful tool for the European banks to dispose of gold holdings without causing market instability yet providing market confidence. Indeed, subdued sales in recent months added to the bullish sentiment. Despite the higher prices, growth in recycling has not been sufficient to offset the decline elsewhere. Gold scrap accounts for about 30% of total supply,leaving most of the supply inelastic. Jewellery consumption still makes up the bulk of the end use of gold and tends to provide a floor to prices: when prices encounter a downward trajectory, physical buying returns to the market.

One of the key dynamics that has been crucial in the change of fortune for gold has been the swing in producer strategy from hedging to de-hedging. The additional 'demand' created through restructuring and position buybacks has been significant. The global hedge-book peaked at over 3000 tonnes at the start of the decade; the latest data from the Fortis/VM Group report estimates the global hedge book fell to 512 tonnes as at Q3 08 – less than a fifth of that peak.

Investment demand has been the one flow that has shown tremendous growth, partly due to the new channels of investment that make holding gold easier and partly due to the external environment that has provided investors with a plethora of motives to hold gold. Investors in search of a safe haven have rapidly increased their exposure towards gold. Fears of a recession, uncertainties regarding the credit markets, Fed rate cuts, a falling dollar, as well as inflationary concerns are some of the factors that helped gold to conquer $1000/oz and cause shortages of physical gold worldwide.

Looking at four factors – dollar hedge, inflation hedge, recession hedge and equity market hedge – from a simple return point of view shows that some of them are purely theoretical, not all are equally important, and indeed those that drive prices sometimes switch places in the driving seat.

Dollar Hedge

Most commodities are priced in US dollars, so it is not surprising that a negative relationship exists between commodity prices and the value of the dollar. Gold's legacy as a monetary asset, with key consumption being outside of the US, helps it to rank top in terms of the strength of its relationship with the dollar over the past ten years.

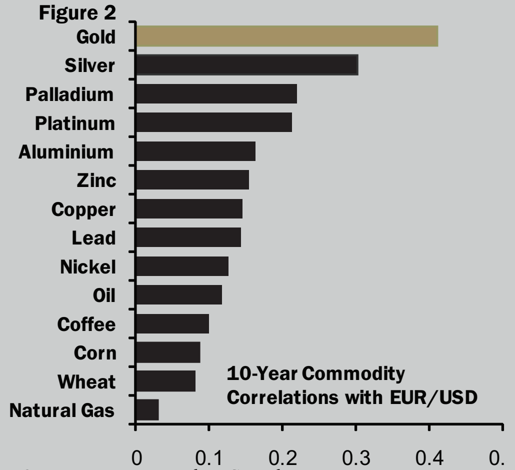
To the casual observer, a weakening dollar would certainly appear to be broadly supportive of an uptrend in gold prices, but the converse does not necessarily hold true. Taking selected isolated periods of significant change in the EUR/USD shows during periods of dollar weakness (Figure 1), gold prices do tend to benefit. For example, between February 2006 and April 2008, the EUR strengthened by 32% against the USD and gold prices rose 64%. Gold prices rose more than the dollar weakened. As the table shows, this is not always the case: gold prices do not always appreciate by a set magnitude of dollar decline. Conversely, between October 1998 and October 2000, the EUR fell 29% against the USD, while gold prices fell 9%. Notably between August 1992 and February 1994 where the EUR weakened against the USD by 20%, gold prices still rose some 11%. Although a weakening dollar is supportive of higher gold prices, it is not essential; furthermore, a strong dollar does not necessarily prevent gold prices from appreciating. It is a strong relationship that is often traded but not one that will unquestionably cause an equal and opposite reaction. The correlation between the USD and gold prices is currently firmly in positive territory, but history shows this relationship tends to weaken during periods of dollar strength, and the relationship becomes stronger during periods of dollar weakness.

Figure 1

Selected isolated periods of significant movement		
Period	% change in EUR/USD	% change in spot gold price
Jul 1980 - Aug 1981	-30%	-36%
Mar 1985 - May 1987	72%	51%
Aug 1992 - Feb 1994	-20%	11%
Nov 1996 - Aug 1997	-16%	-14%
Oct 1998 - Oct 2000	-29%	-9%
Feb 2002 - Dec 2004	50%	54%
Feb 2006 - Apr 2008	32%	64%

Source: EcoWin, Barclays Capital

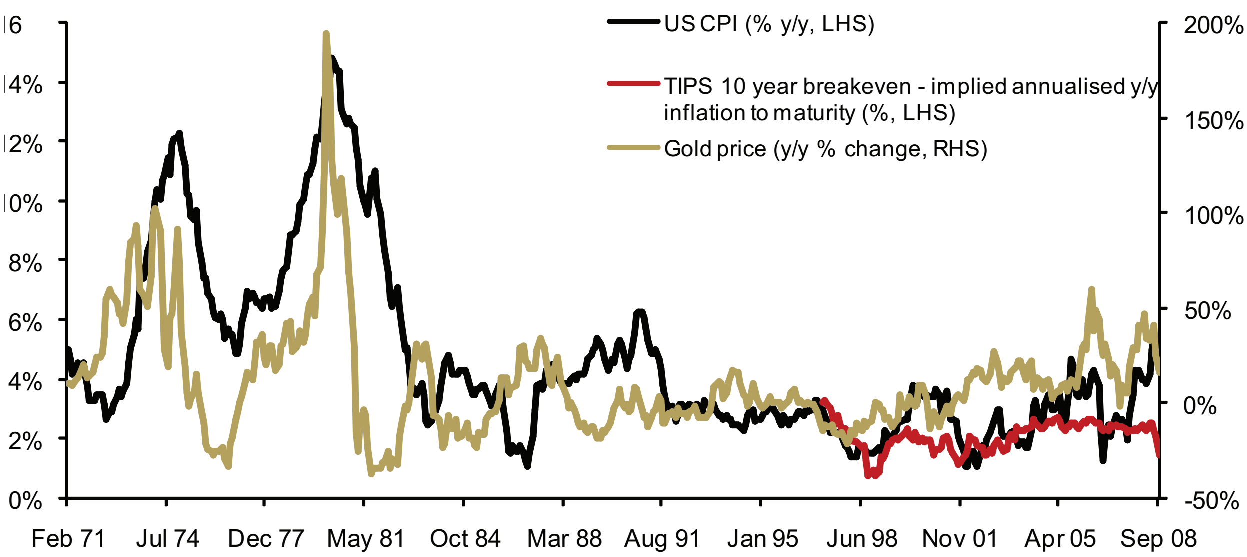
Figure 2



Source: EcoWin, Barclays Capital

Figure 3 Gold as an inflation hedge

Source: EcoWin, Barclays Capital



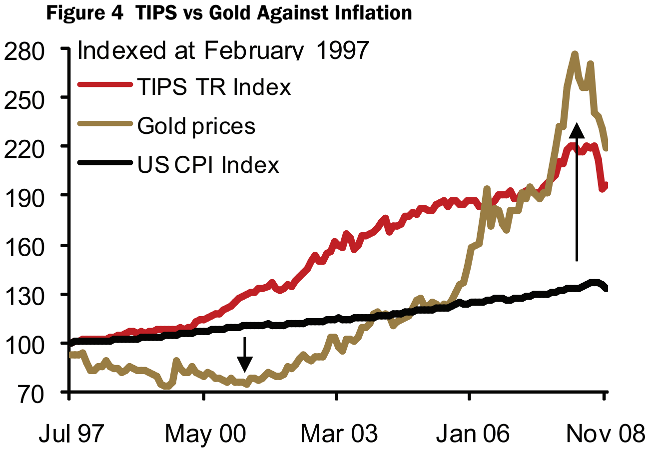
Back in March 2008, when gold prices breached the $1000 level, the USD had hit record lows against most major currencies. In turn, our expectation for the USD to weaken against the EUR on a 12-month basis bodes well for gold.

Inflation Hedge

Gold is sometimes bought as a hedge against inflation, but it is far from a perfect or dynamic hedge and may need to be held for longer periods to be effective. As illustrated in Figure 3, inflation and gold prices have broadly moved together but gold has been far more volatile: while US CPI has moved between zero and 16% since 1971, gold prices have fluctuated between minus 50% and 200%.

In the past ten years, since the launch of the TIPS (Treasury Inflation Protected Securities) data, TIPS offer a better inflation hedge because they have provided a continuous positive return. Gold, on the other hand, underperformed inflation for the first six years, but then overshot the US CPI index over the last four years (Figure 4). It follows that inflation hedging is not the driving factor in gold investment demand.

Figure 4 TIPS vs Gold Against Inflation



Source: EcoWin, Barclays Capital

Recession Hedge

Gold's performance during recessionary periods is inconsistent as it is in inflationary periods. Figure 5 highlights recessionary periods in the US after the gold price was freely floated. Assuming gold is bought at the start of a recessionary period and held until the end of the recession, the return varies significantly and there is no clear pattern.

The impact of recessions on gold demand also varies. Jewellery demand is not just a function of income, it is also dependent on other factors such as price levels and price volatility. Industrial demand is too small a proportion of overall demand to function as a major depressant. Investment buying, whether through small bars and coins or more recently through ETFs, has generally risen and, in turn distorted overall demand.

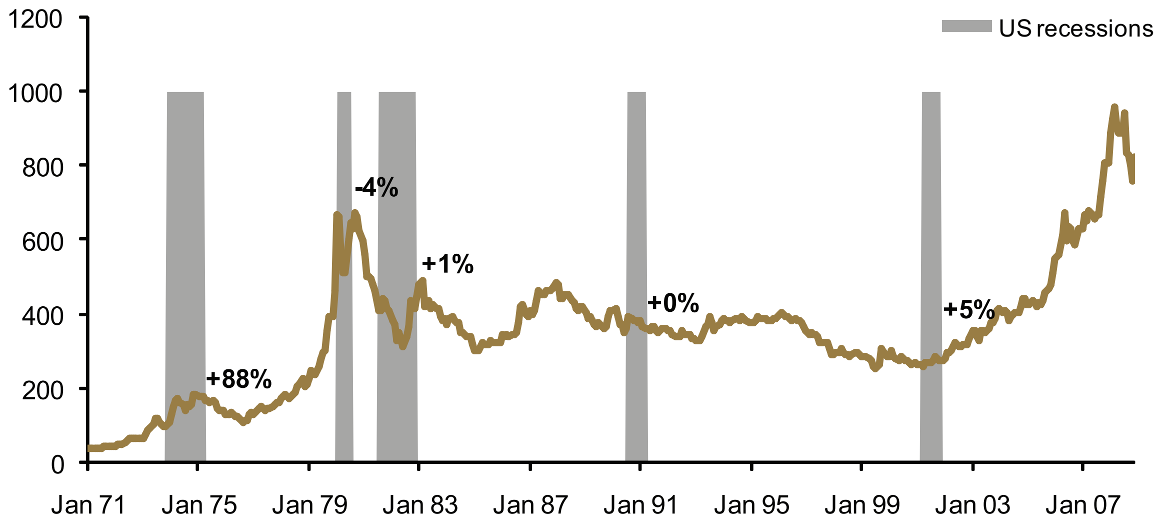
Although periods of rising interest rates have yielded far better returns for commodity index investors than periods characterised by monetary policy easing, gold's performance appears to be little affected from fluctuations in economic growth. There is not a strong consistent pattern of gold price behaviour during recessionary periods (see Figure 5).

Equity Hedge

Gold prices tend to follow a different trajectory to equity and bond markets. Gold prices and equity markets can move in opposite directions as investors switch asset classes, but they can also move together as gold returns are liquidated to meet margin calls elsewhere or amid broad risk reduction. Notably, since the start of the subprime crisis the two diverged, but during October 2008 they suffered similarly from risk reduction. In the past, gold has shown a low correlation with the equity markets. For example, during the 1987 stock market crash when the S&P 500 fell over 20% on Black Monday, gold prices closed 3% firmer and were fairly stable in the proceeding weeks. Similarly, during the 1998 emerging markets/LTCM crisis, gold prices were relatively steady, while equity market volatility increased. On neither occasion were gold prices driven substantially higher. In recent months safe-haven buying seems to have come into play and is buoying prices amid a deteriorating macro-economic outlook and rising geopolitical tensions.

As a safe haven, gold's job is not necessarily to provide capital appreciation but to provide less volatility and add stability to a portfolio. Gold volatility remains low compared to other asset classes and holds its attraction for equity hedging investors.

Figure 5 Gold's performance during US recessions



Source: EcoWin, Barclays Capital

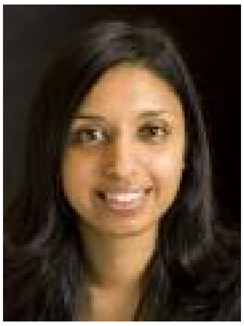
Conclusion

Gold's dual role as a commodity and a monetary asset has meant prices did not tumble as much as other assets or commodities toward the end of last year. Nevertheless, some market participants were disappointed that gold prices did not breach the $1000 level for a second time last year. After all, if gold prices do not thrive in an environment of continual downward revisions to GDP growth forecasts, equity markets spiralling to multi-year lows, interest rates slashed to multi-decade lows, new orders falling to their lowest ever level, plummeting auto sales, tumbling house prices and add to that cocktail renewed geopolitical tensions, what else is needed to boost safe-haven buying?

As we have discussed above, recessionary periods, low interest rates and poor equity market performance do not conclusively result in higher gold performance. However, if many of the key factors are favourably aligned and, most importantly, investor sentiment is positive, gold prices tend to gain upward traction.

If we step back to March 2008, when gold prices hit the all-time nominal high of $1000/oz, gold found itself in a very price-positive environment. Three key drivers of gold were indeed neatly aligned: first, the dollar had reached record lows against most major currencies; second, oil prices were on an uptrend; and, in turn, third, combined with higher agricultural prices, inflation expectations were ripe, as well as equity market underperformance and tight credit markets boosting safe-haven buying. Now the latter has indeed worsened, but the three external drivers have become less supportive with the USD bouncing back, oil prices falling and inflation concerns turning to deflation concerns. Overall, the drivers are not currently stacked as positively as it would first appear.

In the near term, prices are likely to remain torn between two camps. On the one hand, a sharp pickup in safe-haven buying will support prices, but on the other, the need to liquidate positions to meet margin calls elsewhere, combined with periods of USD strength, will cap gold's upside potential. Physical investment demand in gold had an exceptional year, with total gold holdings across the 15 major ETFs closing 2008 at a record 1195 tonnes, while retail sales of coins and small bars have also soared. In our view, three key factors are set to evolve favourably for the metal: 1) we expect the USD to weaken against the EUR on a 12-month basis; 2) we expect oil prices to go through an initially shallow recovery this year, gaining momentum as the year progresses; and 3) an inflationary environment is expected to start to build towards the end of the year. We expect these factors to support an uptrend in prices later in the year. Despite a supportive fundamental base, the inevitable slowdown in producer de-hedging means investor sentiment remains key for the outlook of gold prices. Where prices travel from here depends on whether investors keep turning to gold. ■



Suki Cooper

Suki Cooper is the precious metals analyst within the Commodities Research team at Barclays Capital, based in London. Ms. Cooper joined Barclays Capital in 2004 on the firm's ACA programme, before joining the Commodities Research team in 2006. Her main focus is the precious metals markets, ie gold, silver and the platinum group of metals, which she covers for Barclays Capital's suite of commodity research publications. She is also involved in the team's regular analysis of commodity investment flows. Prior to joining Barclays Capital, she was a chartered accountant at PricewaterhouseCoopers LLP.

Gold Lease Rates

A Rapidly Changing Market

By Raymond Key, Deutsche Bank

It is startling how rapidly markets have changed over the last 15 months in the face of the worst financial turmoil since the Great Depression. The gold market has experienced this first hand and there have been ramifications for the gold lease rate market. It is the purpose of this article to review how the market has changed since my speech at the LBMA conference in November 2007, and to consider outlook for gold lease rates in 2009 and beyond.

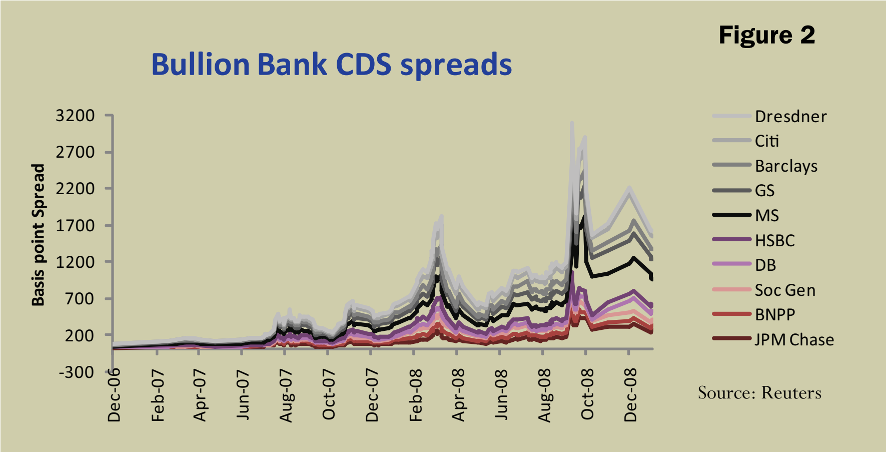


Figure 2

Source: Reuters

2008 saw significant volatility in lease rates and the highest rates observed since May 2001. The trading range for the three and twelve month tenors were 0.03 to 2.93% and 0.22 to 2.42% respectively (see Figure 1).

What were the driving factors behind these moves and will we see more of this volatility in 2009?

Firstly, let us examine some of the major developments within 2008. In my paper in 2007, I went through the major drivers of supply and demand for gold rates. These areas were central bank supply, the direction and magnitude of private gold investment and finally producer (de)hedging.

As a result of the financial turmoil, credit conditions have tightened to extreme levels and risk appetite has in most cases shrunk. Whilst some market commentators believe that central banks may have added more liquidity into the gold lease rate markets (as they did in the currency markets), all of our evidence counters this argument. In fact, in my mind 2008 was the year that central banks became more co-ordinated in their belief that they should not lend gold at such low rates and also more effectively differentiate bank credit risk. During the years 2003 to 2008, bullion banks observed some central banks pulling gold lending when rates were below 1%, whilst other central banks continued to lend down to 1 basis point. This behaviour is changing. Whilst is if difficult to accurately estimate the amount of lending by central banks, Virtual Metals believe that lending decreased from 2,912 tonnes in 2007 to 2,330 tonnes in 2008. Our own insight would suggest that it has fallen more dramatically. In addition, the amount of lending should continue to drop rapidly if risk reward is at all a factor in central banks behaviour. Lease rates are not high enough to justify un-collateralised lending. Unless the lending is considered necessary for the smooth functioning of the gold market (which is not the current case), then the credit conditions do not justify lending below one percent. Figure 2 shows the current credit default swaps (CDS's) for a basket of some of the top bullion banks. Note sixty percent of these bullion banks have CDS's above 100 basis points (bps), and the average spread is 160 bps. This is substantially higher than the 47 basis point average CDS at the end of 2007. Central banks should be reluctant to lend gold to bullion banks on an un-collateralised basis.

Turning to collateralised deposits, I noted in 2007 that under certain situations bullion banks would convert collateral for long dated gold borrowing away from government bonds to gold itself. Given the costs of borrowing government bonds have risen from approximately 10 basis points pre August 2007 to 50-200 basis points over the last 15 months, a number of bullion banks have wisely developed facilities to allow them to convert to gold collateral when gold leases are low enough to justify it. This will be a continuing feature of 2009.

Another factor in gold lease rate trading last year was bullion banks strategically holding lower levels of gold inventories in an attempt to reduce their balance sheet usage or

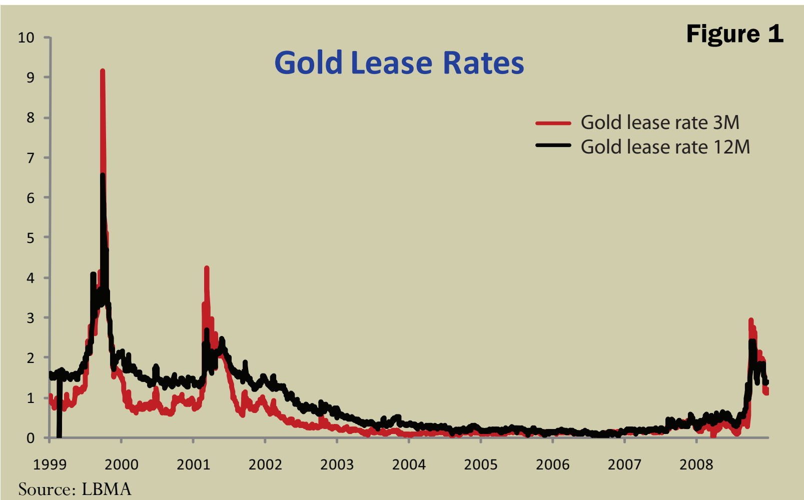


Figure 1

Source: LBMA

they used the inventory to raise USD through the gold swap market. This inadvertently facilitated the spike in lease rates as this reduced their ability to lend into the rising lease rate market.

I believe the above issues have been the main driver of lease rates throughout 2008. I also believe that none of these issues have been resolved so we are likely to experience further spikes in 2009 and I would expect rates to remain at elevated levels when compared to the previous six years.

Another issue that I believe will have wider attention this year is producer hedging. Traditionally, producer hedging provided the primary demand for gold borrowing. At its peak the demand was approximately 110 million ounces in 1999, however as at the end of 3Q08 it only accounted for 16.9 million ounces (Fortis-Virtual Metals report).

A few comments on the topic: it is interesting that the reduction from 2Q08 to 3Q08 was the lowest in two years. Are we at the end of de-hedging and about to enter into a new era? Does it make sense to spend scarce cash flow or debt on buying back hedges in the current environment? The lesson in base metals markets is that super normal profit margins have been destroyed in a matter of months and a large number of producers will not survive if industrial metals remain at current prices. Certainly the gold producers are in an enviable position where gold acts as a safe haven asset and remained solid in the face of widespread liquidation and demand destruction. However, what happens when markets stabilise later in 2009? Costs are unlikely to increase for the next two years given the global economic outlook. Is this not an opportunistic time for them to lock in margins on a two to three year basis opportunistically? Have they not been given the second chance that most of their industrial metal peers did not get?

To put this in perspective see Figure 3. The chart attempts to illustrate the destruction of margin that gold's "poor cousins" are contending with. Whilst it is very difficult to calculate marginal cost of production accurately this chart attempts to indicate relative to current market prices the approximate margins across various metals. Gold stands out significantly.

In addition, what has happened to the vocal minority of shareholders of those base metals companies that demanded the pure play to the base metal price? Have they exited and abandoned these base metal companies, or are some still holders wishing that the companies had locked in super normal profit margins that were seen a little over six months ago? The debate around hedging will re-emerge in 2009. One certainly hopes that any gold hedging that occurs will be implemented when the profit margins are as healthy as they are now and not when it is a matter of survival.

If hedging does begin to become more acceptable, this could trigger a multi-year move higher in lease rates.

Investment demand is the other area that has an effect on gold lease rates. The purchasing of unallocated gold or futures provides liquidity to the market, whilst the global gold ETFs drain liquidity basis their holdings being backed by allocated gold. It is interesting to note relative to a year ago the global ETFs are 3.5 million ounces higher and the Comex speculative long positions are nearly 8 million ounces lower. These both net drain liquidity from the lease rate market and put pressure on rates to rise.

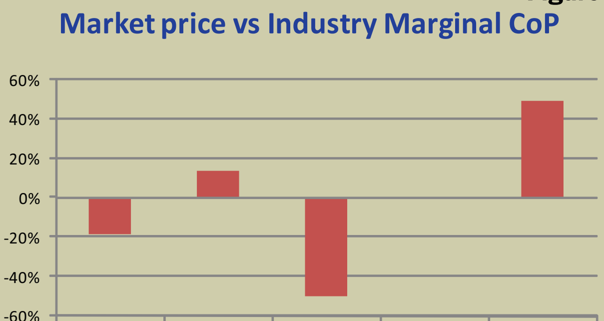
The caveat to higher lease rates in 2009 could come from two factors. Firstly, in the current environment, where global central banks will force interest rates close to zero to re-inflate the global economy, it is difficult for gold lease rates to remain high. It is also difficult to push the gold curve into backwardation - something that has rarely been seen in 20 years. The second caveat would be if central banks decide to put gold into the system to provide bullion banks with another form of liquidity. I doubt many central banks will consider this necessary yet.

In summary, I believe that gold lease rates will be floored close to 50 basis points for the foreseeable future and it is quite feasible that we will see the highs of 2008 retested.

A post script for those that look at lease rates more deeply: many market participants have asked during 2008, "what is the market gold lease rate?" Every bank now has a different lease rate curve when compared to Libor minus GOFO. 2008 has been the year where bullion banks' funding rates have never been so diverse. Three month rates across bullion banks have ranged from 50 basis points under, to 300 basis points over Libor. This has made it more challenging for central banks to assess bullion banks deposit rates relative to their credit quality and has also reduced liquidity in the inter-bank gold swap market. The outcome of these funding differentials has widened spreads and pushed the market towards the gold interest rate swaps market. Some bullion banks have taken advantage of long-term physical gold holdings to lend gold forwards, and borrow gold interest rate swaps to raise USD. Given that most bullion banks long term funding for USD is at least 150 basis points higher than Libor, there have been some great opportunities for banks that have either had, or have been able to raise long-term gold they can monetise. Based upon this fact alone it does surprise me to see the spread between gold forward and interest rate swaps is between 20 to 35 basis points (up from its lows of 8 basis points) and not substantially higher.

Certainly, the terrible events within the financial market have breathed life into the gold forward and lease rates markets and the future does not look dull. ■

Figure 3



Aluminium	Copper	Nickel	Zinc	Gold
-18%	14%	-50%	1%	50%

Source: Deutsche Bank

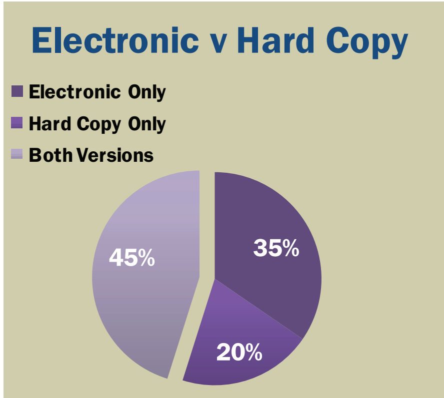
Raymond Key *has 13 years experience in financial markets. He began his career with Bankers Trust in New Zealand, training as an interest rate derivatives trader before moving to trade currency options in 1997. When Deutsche Bank took over BT in 1999, Raymond joined the DB's metals business to trade precious metal options and forwards in Australia. In 2001 he was approached by Credit Suisse to be a Director, managing their global vanilla options and forwards books in London. When CS withdrew from the market late in 2001, Raymond then moved to Morgan Stanley to trade both precious and base metal derivatives. In June 2007 Raymond was approached by Deutsche Bank to become Managing Director, Global Head of Metals Trading.*

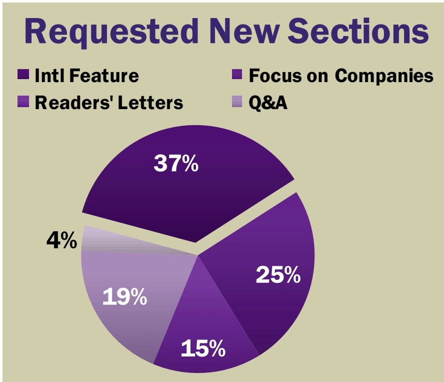
Alchemist and Membership Surveys

The Membership Responds

By Ruth Crowell, LBMA Executive Coordinator

In the second half of 2008, the LBMA conducted two surveys asking for feedback from the Membership. As you may have seen, the LBMA sent out a questionnaire with the December issue of the Alchemist asking for feedback on the content and format of the current Alchemist. The LBMA also hired a market research company to conduct a more direct survey of Members views on more general issues such as value of Membership, the website and the Conference. Twenty-two representatives of Members and Associates participated in telephone and in-person interviews for the Members' Survey and over 150 readers completed questionnaires for the Alchemist. Thanks for all your feedback and thoughtful suggestions.





Alchemist Survey

Respondents seem satisfied with the current *Alchemist*; the only major requests were for additional content and an additional electronic format. New items which readers would like to see in the *Alchemist* include: a new international feature section, a regular focus on selected companies, more intense coverage on the topics of central banks & refining and more focus on silver, platinum and palladium.

Regarding the idea of the LBMA producing an electronic *Alchemist*, 45% of respondents would like to receive both a hard and electronic. 25% of respondents would like to receive only an electronic version while 20% prefer to receive only a hard copy. Due to the high interest in an electronic version, the LBMA has been investigating different formats and will most likely launch an electronic version later this year. The LBMA will retain however, the hard copy version of the *Alchemist*, due to its popularity and its ability to help members to "stay in touch in this faceless electronic age."

Another popular idea that came out of our survey is the addition of two new sections in the *Alchemist*: an international feature section and a regular focus on selected companies. An international feature section might select different geographical areas in each issue. This could work together with a focus on selected companies from that area. The LBMA is considering the addition of both of these into the current *Alchemist* format.

Otherwise in terms of content, readers seemed pleased with the five major subject areas currently included in the *Alchemist*, i.e. Bullion Market Products, Supply/Demand & Prices, People & Companies, Industry Events and LBMA News. Of these topics, many respondents would like to see more of Supply/Demand & Prices and People & Companies. Other topics that readers would like to see more of were Refining and Central Banks. After that Private Investment and Scrap were the next most requested subjects.

Response to the question about the *Alchemist*'s strengths and weaknesses, fortunately the weaknesses were small in comparison to the strengths. The major themes that emerged as strengths were that the *Alchemist* is considered informative, well balanced and a unique source of information for the bullion market. The identified weaknesses were the need for an electronic format, timeliness of reporting, either too much or too little technical content and too much focus on gold.

In terms of how the *Alchemist* should change, the electronic format was stressed as well as an expansion of content, more frequent publications and further inclusion of topics such as technical aspects and PGMs. However, most readers replied "Fine as it is," when asked how should the *Alchemist* change.

Membership Survey

Universally respondents agreed that the LBMA was a well-managed and professional trade association which fulfils an important role for the bullion market. Only 31% of respondents thought that any of the LBMA services could be improved. Of those 31%, most mentioned an improvement of electronic communication with Members. In particular an electronic version of the *Alchemist* and online market updates were mentioned.

Website

The website is the most widely used of the LBMA services and 36% of respondents felt the site could be improved by adding more information, for instance on PGMs. In terms of external links, 40% of respondents agreed that more would be beneficial, e.g. links to Members' websites. The website appears to be the key regular point of contact members have with the LBMA. Therefore it is important that the Executive continue to review and update it on a regular basis. All agreed, however, that the site was easy to navigate and that it provided enough information about the conference/seminars, special events and adequate booking facilities.

Alchemist

As with the *Alchemist* Survey, the majority of respondents were complimentary about the *Alchemist* and it appears to be a well-read and valued trade magazine. Although there were several negative comments, in general respondents found the magazine informative and interesting with a good balance of articles, providing a positive image for the LBMA. It was suggested that an electronic bulletin may work in conjunction with the hard copy *Alchemist* in helping to maintain a regular dialogue with its members.

There was also strong support for the magazine to include editorial coverage of other precious metals such as platinum and palladium, although clearly not at the expense of a reduced coverage of gold and silver. Respondents pointed to the success of the joint LBMA/LPPM Conference last year and argued there was no reason why further PGM content could not be included.

Conference

From the survey it can be concluded that the all respondents were aware of the LBMA's Conference and that the majority of them had attended a previous conference with over 50% saying they attended on a regular basis.

However, whilst agreeing the LBMA Conference was a great event for the industry, there was concern amongst respondents (40%) regarding the location and the costs of attending this. However on a positive note the majority agreed it was an event that traditionally brought all the key decision makers in the industry together in one place and a most useful occasion to network. Also respondents universally agreed that they received sufficient notice of the Conference itinerary and there were no complaints as to the advice and info available with respect to flights, hotels and travel arrangements for the conference. The Executive is discussing all of the points raised regarding the Conference within the Public Affairs and Management Committee.

Our Thanks

Many thanks to all the respondents who participated in the *Alchemist* and Membership Surveys. We appreciate your comments and are planning on how best to respond to the suggestions put forward. To those of you who indicated your interest in contributing or advertising, the Executive will be in touch soon! If you have further feedback, please do not hesitate to email alchemist@lbma.org.uk.

The Third LBMA Assaying and Refining Seminar Programme

23-25 March, 2009

THE ARMOURERS' HALL
81 COLEMAN STREET
LONDON EC2R 5BJ

Day One - Monday 23 March

Welcome Reception at Armourers Hall

Day Two - Tuesday 24 March

Introductory Session

Remarks by the Seminar Chairman
Stewart Murray, London Bullion Market Association

Proficiency Testing and Fitness for Purpose in Analysis
Prof. Michael Thompson, Birkbeck College

Good Delivery List – Recent Developments
Peter Smith, Chairman, LBMA Physical Committee, JP Morgan Chase Bank

Pro-Active Monitoring: Results from the First and Second cycles
Douglas Beadle, LBMA

Assaying and Reference Materials

The Work of the LBMA Referees
Stewart Murray, London Bullion Market Association

Comparison and Complementarity of Analytical Methods for the Determination of the Fineness of Precious Metals
Pascal Cassagne, Metalor

X-ray Flourescence Analysis of Silver
Michael Steffen, Norddeutsche Affinerie

Reference Materials

A Survey of Available Reference Materials
Dirk Hofmans, Umicore Precious Metals

Development of Silver Reference Materials
by the Royal Canadian Mint and the Rand Refinery
Neil Harby, Rand Refinery

LBMA Reference Materials - Project Update
Mike Hinds, Royal Canadian Mint

Manufacturing of Gold Reference Materials by Tanaka KK
Ichimitsu Itabashi and Hiroshi Sawai, Tanaka KK

Day Three – Wednesday 25 March

Physical Quality and Weighing

LBMA Visual Guide to Good Delivery Bar Acceptability
Stewart Murray, LBMA

Casting: Getting it Right
David Stokes, Precious Metal Refining Consultant

Use Of Ultrasonic Analysis for the Quality Control of Gold Standard Large Bars
Michele Genel, PAMP
Followed by comments from London vault managers

The London Approach to Weighing
Tony Dean, HSBC

Panel Discussion
- Assaying
- Reference Materials
- Physical Quality
- Weighing

Concluding Remarks and Suggestions for Future Work
Stewart Murray, LBMA

Registration Now Open

Registration is free to all LBMA Members, Associates and Good Delivery Refiners. Other companies are requireed to pay a registration fee of £230 (inclusive of VAT) per person.

To obatin a registration form and further information please visit www.lbma.org.uk/events/seminar

If you have any queries, please contact Collett Roberts on 020 7796 3067 or collett.roberts@lbma.org.uk

CENTURIES OF EXPERTISE.
GLOBAL CAPABILITIES.
PRECIOUS RESULTS.

At ScotiaMocatta, helping clients achieve their strategic and financial objectives is our highest priority. Our team's expert knowledge and strong product execution capabilities in the precious metals industry enable clients around the world to take advantage of unique business opportunities.

With roots dating back to 1671, ScotiaMocatta remains a recognized global leader in precious metals trading, financing and physical metal distribution. Our 150 specialists in 9 countries provide tailor-made hedging and financing solutions to meet clients' precious metals needs.

At ScotiaMocatta, our superior insight delivers outstanding results.

DUBAI 971 (4) 228-4757
HONG KONG (852) 2861-4700
LONDON 44 (0) 20 7826-5655
MEXICO CITY 52 (55) 5325-3418
MUMBAI 91 (22) 6658-6901
NEW YORK 1 (212) 225-6200
SHANGHAI 86 (21) 5098-8688
SINGAPORE (65) 6536-3683
TORONTO 1 (416) 367-1220
TOLL-FREE 1 877 BULLION (in Canada)
1 800 MOCATTA (in the U.S.)

When insight *matters*.™

ScotiaMocatta™

www.scotiamocatta.com

™ Trademark used under authorization and control of The Bank of Nova Scotia. The ScotiaMocatta trademark represents the precious metals business of The Bank of Nova Scotia and its various subsidiaries in the countries where they operate. Scotia Capital Inc., Scotia Capital (USA) Inc. and Scotia Capital (Europe) Limited are authorized users of the mark. The Bank of Nova Scotia is incorporated in Canada with limited liability and is authorized and regulated by the Financial Services Authority (FSA) in the UK.

The Bullion Market, Then and Now

By Nicholas Frappell, RBS Sempra Commodities

Many people in the market today will be able to recall the dealing rooms of the late 80s and early 90s. In so many ways, they were testament to the phrase 'the past is another country', a country that sounded and even smelt a little different. Blue smoke curled up from dealer's ashtrays; telex machines chuntered, increasing to a metallic canter as business picked up; the beep of Reuters dealing machines would reach a crescendo of their own on call-outs from other market-makers. "Five bars - Po Sang" and "Silver in a lakh for Saradar?" evoke the passing of old counterparties. And a broker-box would bark "Dollar Mark in a score?" in a voice that was pure Romford.

The world has changed enormously since then, and the market with it. So how do dealers sitting at their desks today find the world of gold and precious metals trading compared to the world of 10 or 20 years ago? And as importantly, how have the constants in the market evolved, bearing in mind that gold has been exchanged in one way or another for longer than almost any other commodity in mankind.

The most obvious impact has been the spread of technology. There has been a great 'democratisation' of trading access via new electronic platforms that have cheapened the cost of entering the market and putting a trade on. Electronic platforms allow for blindingly quick execution, and in addition, a massive drop in the cost of both computing processing power and fast servers has enabled 'algorithmic' traders to exploit opportunities in futures.

Additionally, there has been a rise in the number of different platforms, and a multiplicity of different users on these platforms. The crowd has changed. Comex, Tocom and EBS have been joined by Dubai and MMC and others. Whilst the concentration of liquidity is still in the OTC market and the main exchanges, there has been a fragmentation of liquidity away from the Comex 'floor' and London, and to some extent, a fragmentation in the type of different players that long-established precious metals traders were used to seeing.

An additional factor is the rise of the prime broker. Major banks access the EBS platform directly in their capacity as Prime Brokers, and in turn, a great spread of clients operate behind the name of the bank, buying and selling OTC and futures (The Prime Brokerage facility enables clients to trade precious metals using the bank's balance sheet and documentation, simplifying life for the client and earning income for the bank). Again, these clients participate in the market, yet they bypass the traditional dealing desk in the sense of asking for quotes.

So what does all this 'fragmentation' mean for traders today? It has shifted the pool of liquidity away from them to some extent, and increased intraday volatility in the process. The old pyramid where market makers sat at the top still exists, but outside of the pure 'prop' desks, the professional market seems to have narrowed its focus to day-trading of smaller positions, aware that there are significant flows happening on the 'electronic' – such as Globex or EBS, that can move prices significantly without so much as an ounce trading across the traditional trading desk.

Access to Comex gold and silver contracts throughout the London trading day means that dealers are hedging regularly via the electronic platforms as well. When I worked in Tokyo, TOCOM dealers often joked that a weekend spent practicing at an amusement arcade in Shinjuku was time well spent in preparation for the week ahead in TOCOM. The then 'new' electronic trading system meant that responsible adults were flapping around in a blur trying to hit the right keys for the active month. Of course, this was before the advent of the Playstation, or even the Sega Saturn, thereby justifying a trip to the bars and arcades.

Now dealers everywhere are in the same boat, trying to point and click as fast as they can. That thin wail you hear every so often echoing over the open line is not the sound of someone having their lunch cancelled by a credit-crunched broker, but rather someone whose server has decided to give up the ghost at a critical moment.

Technology can have surprising results however. As Ross Norman remarked in Kyoto, latency times for trade execution are becoming ever more critical. So the hedge fund which moved to the Alaskan wilderness so the guys could indulge their taste for salmon fishing and heli-skiing might yet be forced to leave Juneau for the daily trudge to lower Manhattan.

I haven't mentioned the ETFs in detail, as although they give everyone more data to look at, it's debatable whether they change the frame of reference for most dealers day-to-day, although ETF market makers will benefit

from the flows. However, what the ETFs are part of is a huge mobilisation of investment money into almost all markets as a consequence of a decade or more of easy money policies and a keen chase for yield in the face of an aging demographic in the west generally, and in Japan in particular.

It is this heavy flow of money into indexes and funds of various kinds, often via new channels, that have created an 'Alice through the looking Glass' world for traders, as money surged in on the back of a compellingly-told commodity story that made good sense when prices were low and your commodity curve was backwardated, allowing indexes who held 'long' futures positions to earn yield by rolling their positions… but became increasingly stretched in a high-price contango world.

What we all learned was that if the participants in the gold market ever thought that they were in charge of the game, the size of money inflows disabused them. Dealers used to the idea of servicing the needs of apparently rational players in the market – Indian physical merchants, producers and Central Banks – for example, discovered that money was the new fundamental, and it didn't seem very rational at all, or rather, the lack of liquidity has produced intraday price moves which mystify – which is not the same as 'irrational' of course.

Nowadays, structured notes which might have payouts linked to the price of (for example) diesel, copper, agricultural commodities and gold in a custom blend are commonplace, and the optionality embedded in them is as typical of today's market as a producer enquiry in 1989.

The most striking thing for today's dealers however is this: we have stood on the precipice of financial meltdown, and seen gold trade to US$1,040 last year – compared to the US$250's seen in 1999.

The centrality of gold in an environment of wealth destruction and fear for the safety of banks and savings is partially demonstrated below. In the light of the huge moves downwards in some of the stock indexes and the WTI, the -13 % move in the particular S & P / Case-Schiller Index (tracking the US Housing Market) I chose from January through to October of last year looks trivial, however it represents the continued erosion in the value of the most important asset that most Americans hold.

Until last year, the predictions of extreme gold bulls who fundamentally distrusted paper money and claims on the banking system had never been tested in any serious way. Now they have been, and will continue to be. Whichever side of that debate one stands on, something that was a fringe issue to many has moved to centre stage. And the growth in demand for small bars and coin shows the sentiment among the general public. Given the scale of wealth destruction in the past 12-24 months, gold's appeal isn't too hard to understand. Whilst it is too early to say whether all four horsemen of the financial apocalypse have arrived, for those who stood in the rain queuing to get money out of Northern Rock, or turned up to work at Lehman Brothers on 15 September of last year, it must have felt as if at least one was trotting past.

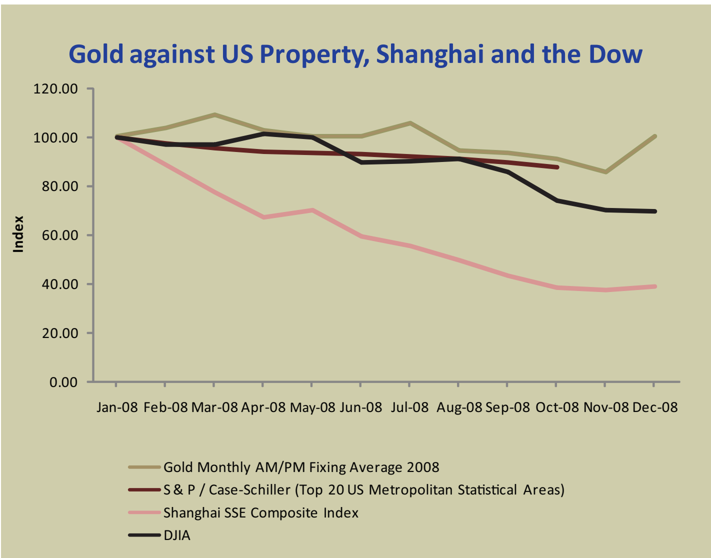
Looking forward, and completely leaving behind the day to day differences between the markets of years gone by, and the ones we face now, one age-old question still remains in the back of the minds of those who look to the gold market for part of their savings. What would gold be worth in the event of a full-scale collapse of society as we know it?

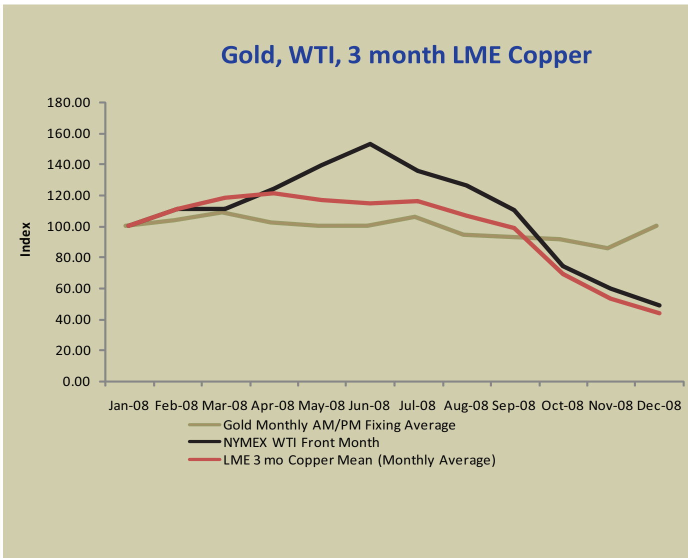
Now that question is unanswerable in detail, but let's hazard an attempt. It will be worth more than the flip-flops you stand in as you nervously survey the street for half-crazed citizenry, palms sweating on the stock of a recently-acquired shotgun. But it *might* be worth far less than the parts for the water pump that stands between you, your family, and dehydration.

That, however, is a whole article in itself. ■

Nicholas Frappell *trades on the precious metals desk at RBS Sempra. He started in precious metals at Bank of Boston and later worked for Sumitomo Corporation. He has lived and worked in Singapore, London and Tokyo.*

Nick is a member of the LBMA Membership Committee and a former member of the Management Committee. He read Political Economy at City University, London.





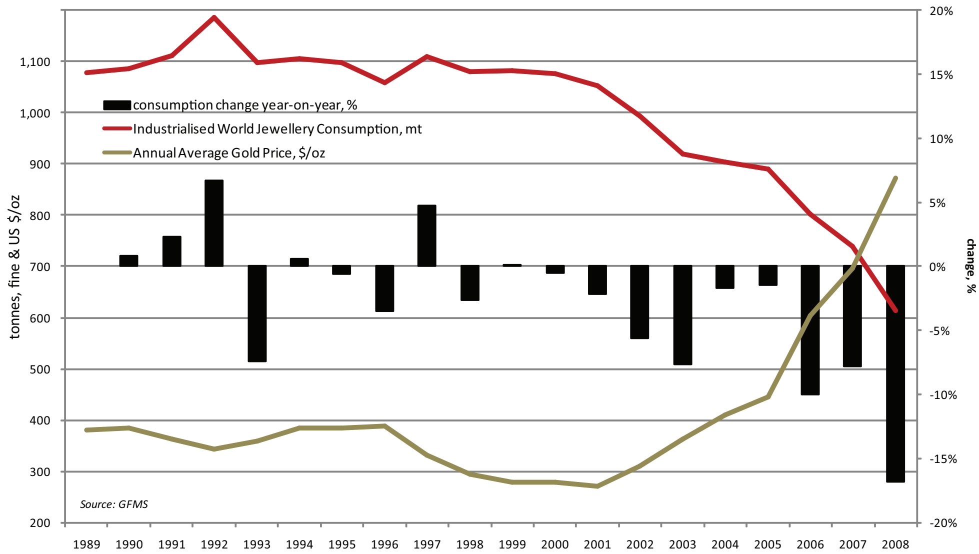
Gold Jewellery Consumption

The Impact of the Economic Crisis

GFMS

Reviews of gold jewellery consumption typically focus on the price sensitive countries of the developing world, in particular India, because of their marked fluctuations in demand. The industrialised world's more stable consumption, however, is still worthy of analysis.

Figure 1 Industrialised World Gold Jewellery Consumption & the Gold Price



Industrialised countries comprise: Europe (incl Russia, excl other FSU), North America, developed East Asia (Japan, South Korea, Singapore, Hong Kong & Taiwan) & Oceania

Firstly, it remains sizeable, at around 600 tonnes last year, and has the scope for massive change. As illustrated in the accompanying chart, this grouping's consumption has roughly halved since its early 1990s peak. Secondly, its relatively price insensitive nature means it has the active ability, at least in theory, to boost or undermine the gold price, in contrast to the developing world's consumption, which may well just passively inflate or deflate in response to price moves caused by other factors.

This loss of almost 600 tonnes of demand, as implied above, had three main causes, namely background structural changes, higher and more volatile gold prices, and recent macro-economic problems. The explanation and importance of each is assessed below.

Background Structural Trends

A historical review of consumption in the industrialised world shows a downward slide since 1992 that has been remarkably smooth. The chief reason for this seemingly relentless decline is that the bulk of losses within this period are attributable to secular changes. One such change is market share loss by all forms of jewellery to other areas of discretionary spending, such as consumer electronics or short break holidays.

A second is that consumers have been choosing to devote an ever greater percentage of expenditure when buying jewellery to elements other than precious metals. These elements can be physical, such as diamonds (which explains the norm in most markets for the share attributable to gemset over plain pieces to rise inexorably), or intangible, such as the perceived value of a branded item. One manner in which this has occurred is the long term slip in average weights as lighter pieces have higher making charges on a per gramme basis. There has also been market share loss by gold to other precious metals in several markets.

It is important to note here that this does not imply the value of gold jewellery consumption has been falling. A simple multiplication of the fine weight by the average price shows a strong uptrend in value this decade and that is before we take into account inflating margins (branded, lighter and gemset pieces invariably carry a higher markup than plain, unbranded and heavy items).

The Gold Price Rally

Structural changes, however, cannot explain the acceleration in the pace of decline from 2006 onwards. Instead, it seems fair to blame much of this acceleration on the gold price rally. It might be thought that this would primarily hit consumption through consumers' budget constraints. However, of seemingly far greater importance is the trade's management of margins.

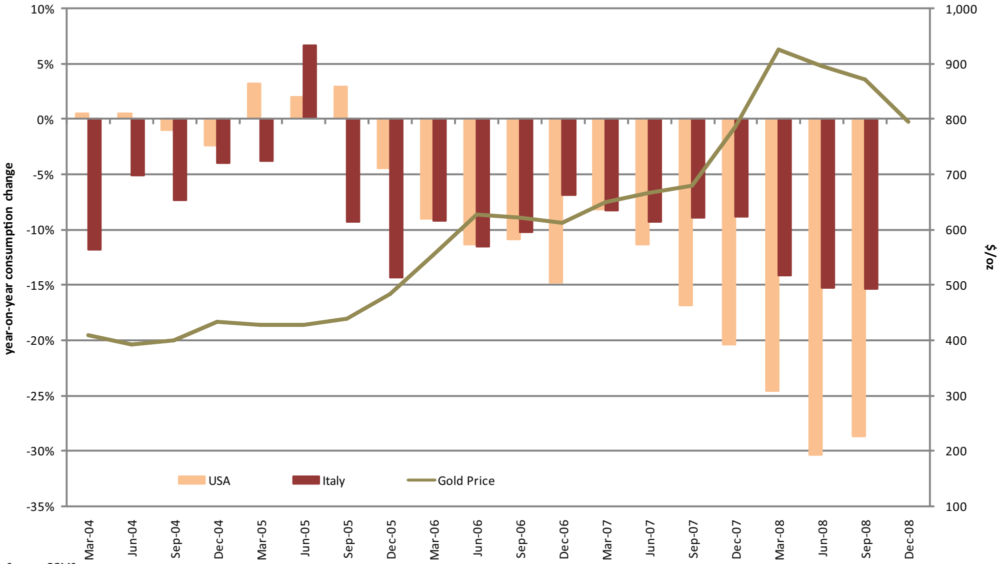
In theory, the rise in the gold price could have been accommodated by a drop in the markup over the fine gold content that the consumer ends up paying but, instead, far more attention seems to have been paid to shaving the weight of gold to keep pieces below key price points, especially in the United States. Such methods have included swopping from solid to hollow items or the adoption of electro-forming (a process geared to producing light weight articles). There has also been an intensification of structural trends, such as incorporating more non-metal elements (a pendant on a leather cord rather than a gold chain for example) or adding small, inexpensive diamonds to boost apparent value.

The Financial and Economic Crisis

It is of course quite reasonable to describe the gold rally as partly the result of recent financial troubles. Nonetheless, it is important to see if there are direct links between falling jewellery consumption and the abrupt slowdown in GDP growth in the industrialised world that began last year. A review of annual figures is of little help as the acceleration in the pace of consumption's decline in 2008 could merely be a function of record gold prices.

To isolate the gold price, we therefore need to look at a more detailed time series. If we begin with quarterly figures, there has been a reasonably clear acceleration in the pace of consumption declines over the last year or so and, while steeper losses in late 2007/early 2008 coincided with rapid price gains, those in the second and third quarters were in tandem with prices easing; a development that obviously implies other factors at work. (At the time of writing, our fourth quarter figures have yet to be finalised

Figure 2 Selected Countries' Gold Jewellery Consumption & the Gold Price (year-on-year change and the quarterly average)



Source: GFMS

but these are likely to show slightly greater losses again when published by the WGC in mid-February's Gold Demand Trends.)

The closer analysis of other factors' influence arguably requires monthly information. One useful data set here are the figures for US gold jewellery imports. As shown in the chart, there was a marked jump in the speed of the decline in imports from mid-2007. Up until March 2008, these ever steeper losses closely mirrored the gold rally but, after that, there were periods of both easing prices and larger consumption losses. Time lags may partly be the cause but changes in consumer spending or confidence, as graphed, do appear to have enjoyed greater similarity to import behaviour.

The fact that the pace of consumption losses has sped up is partly due to an intensification of the process of minimising gold use. One such area is a move to lower carats. Before 2008, shifts to lower carats had been comparatively limited, especially in those markets dominated by one standard, say Italy and 18-carat. There was only one obvious exception here, Japan, where there had already been a swing from 18 to 10-carat. More recently however, there has been a more pronounced shift to lower carats, particularly in those countries with a mixed carat structure, for example the United States. There, and in other markets such as Australia, this has taken on a more radical form in the growth of 'gold-filled' pieces, jewellery where carat gold is clad to a core of another metal, typically silver, to give an effective carat for the whole item of only three or four.

Another factor that we have seen is greater market share loss by gold to other metals. In Italy for example, there was a swing to the non-precious, such as brass or stone-set steel, while the US market saw a shift from gold to high end silver jewellery. The latter's resultant focus on value rather than weight helps explain why silver's losses globally to other forms of jewellery, such as steel, may well have outweighed the gains from other consumers' migration from gold. As a result, silver also suffered accelerating consumption losses last year in the industrialised world, although the scale of the drop remained far smaller than that inflicted on gold. Gold benefited through substitution from platinum but this tended to be confined to the first half of last year, when gold's discount was over \$1,000/oz, and was centred on the more price sensitive Chinese market.

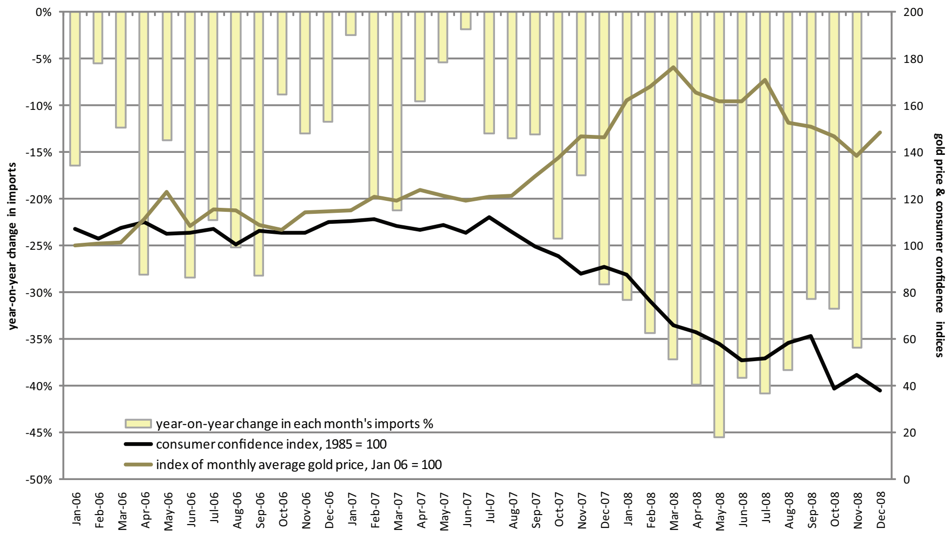
As for the impact of the crisis on the jewellery industry, there is clear evidence of manufacturers facing great problems in their ability to borrow gold, whether securing bullion supplies if counter-party risk had been judged too great or paying more as true lease rates rose. The securing of credit has also been a major headache for wholesalers and retailers and one way in which this has impacted the gold market is through the occasional remelt of slow selling pieces in order to get inventory valuations below loan limits.

A Conclusion

It is possible to assess the impact of both the direct consequences of macro-economic turbulence and their indirect transmission via the gold price by calculating how large industrialised world consumption might have been if we had just had structural change to contend with. This can be done in a indicative fashion by applying the average annual drop in the period 1996-2005 of around 2% to the years from 2006 (the first year in which one could arguably begin to describe prices as "high") to 2008. If they had fallen at that average pace, that would have left jewellery consumption in 2008 some 220 tonnes higher than our current figures. Given that macro-economic problems are yet more recent, it is probably fair to blame the bulk of these non-structural losses on the price. However, for 2008 alone a roughly equal billing for the two is perhaps a better stance, given the jump in the scale of the drop from 2007 to 2008.

Looking ahead, it is hard to see how another drop in consumption in the industrialised world can be avoided, given bleak economic prospects, possibly higher prices and the background changes whittling away at weight. The exact scale of the decline will be chiefly dependent on the first two but it is easy to envisage a scenario in which losses in 2009 are a good 50 tonnes.

Figure 3 US Gold Jewellery Imports, the Gold Price and Consumer Confidence



Source: consumption & price GFMS, consumer confidence www.pollingreport.com

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

Rand Merchant Bank was admitted as a Full Member with effect from 1st March, 2009.

Three companies have recently resigned their membership with effect from 31st December, 2008: Marubeni Europe plc, Bank of America and Banque AIG.

Associates

The LBMA Associate Review programme requires Associates to renew or replace their sponsorship on a rolling three-year basis. During this process, Goldas of Turkey did not provide three sponsors from within the Membership and as a result, its Associate status was revoked with effect from 31st January, 2009.

As a result of these changes and the earlier departures of Bear Stearns and Lehman Brothers, the membership list now includes 63 Full Members (ten of which are Market Makers) and 55 Associates. During 2008 there was a net increase in the overall Membership of four, due mainly to growth in the Associate category. The full membership list can be found on the LBMA website.

COMMITTEES

Management

The Management Committee met in mid-December 2008 and in the beginning of February 2009, to review the work of the sub-Committees. One of the most important issues discussed was the venue for the 2009 Conference. During the last month, many Members (as well as delegates who have attended previous conferences) have asked the LBMA to reconsider the decision to hold this year's Conference in Peru, due to the recent changes in the business environment. Many of them have expressed the view that attendance from both Europe and Asia would be dramatically lower this year if a venue in South America were chosen.

The LBMA Management Committee has now decided to postpone the choice of Lima as the conference venue and to hold the tenth annual LBMA Conference in Edinburgh, during the period 1st -3rd November, 2009.

The Committee also responded to requests from some Members for the LBMA to hold a seminar concerning cleared forwards and it agreed that this should be held as an open forum for all Members and Associates three institutions to present their ideas on this topic (see sidebar).

The Committee also discussed the possibility of making the Biennial Dinner an annual event as had been suggested by some Members. However the final decision was to continue to hold these dinners every two years.

Physical

The Physical Committee met in December and as usual reviewed progress with applications for Good Delivery listing. Currently three applications are being processed and a further eleven companies have indicated a serious intention to submit applications during the coming year.

The Executive has now reached the halfway point in the second cycle of proactive monitoring. Each quarter, approximately ten refiners are required to submit to monitoring which involves testing their assaying proficiency and checking the non-technical aspects such as ownership, tangible net worth and production levels.

Excellent progress has been made by Tanaka in Japan with the production of gold reference materials. The two ingots containing different levels of impurity elements have been proved to be homogeneous. The materials have also been engraved and the final packaging has been ordered. The final step will involve the analysis of the actual impurity levels involving a collaborative effort by the laboratories of ten Good Delivery refiners.

The project to evaluate a new electronic scale for the weighing of large gold bars has also made good progress recently. The new scale has now been delivered to London and checked by the LBMA's weighing consultant who concluded that it appears to meet the LBMA's requirements over the coming months it will be thoroughly tested in comparison with the traditional beam balance in one of the LBMA vaults.

Public Affairs

The Public Affairs Committee met in December 2008 and February 2009. One of the most important issues discussed was the venue for the 2009 Conference. The LBMA had previously announced that this would take place in Lima, Peru in the period 1-3 November. The Committee discussed the concerns expressed by some Members that having another long-haul destination (as far as attenders from Europe and Asia are concerned) might result in a significantly reduced participation. See the decision of the Management Committee above.

During the past months, the Executive has been busy finding out the views of Members and Alchemist readers on a number of aspects of the LBMA's PR activities and publications, including the possibility of producing an electronic version of the Alchemist as an alternative to, or in addition to, the printed version. Views on the content of the Alchemist were considered during the February meeting, and the Executive is researching options for an additional electronic version of the Alchemist.

Membership

The Membership Committee held its first meeting of the year on 9th February, 2009 to review applications for and changes in the Membership. Following the resignation from the Committee of Eddie Nagao (on his return to Japan) and more recently of Bob Davis (who is leaving BNP Paribas) the Management Committee has accepted the applications of John Levin of HSBC and Michael Ludwig of Paribas to join the Committee. Our thanks go to the three other candidates who put their names forward.

Finance

The Finance Committee met to review the Management Accounts of 2008 and to consider a revised budget for 2009.

CLEARED FORWARDS SEMINAR

The seminar organised by the LBMA for Members and Associates was held on 21st January. Three institutions (whose contact details are shown below) made presentations on how Members could use their clearing facilities for credit mitigation and thus enhance the existing OTC market. The LBMA is not intending to recommend any of the options that were put forward by these institutions. Rather this is something which individual Members may decide to consider individually. The contact details of the three institutions are:

London Clearing House
David Farrar,
david.farrar@lchclearnet.com

CME Group
James Oliver,
james.oliver@cmegroup.com

NYSE Euronext
Jennifer Ropiak,
jropiak@nyx.com

REACH

Following the deadline for pre-registration on 30th November 2008, the LBMA met with Dr. Jeff Levison, the Co-Chairman of the EPMF Precious Metals Consortium, and a further more formal meeting is planned to take place in March or April. This will allow those companies who have pre-registered to have a better appreciation of the role and activities of the Consortium.

After taking advice from legal counsel, the LBMA decided finally not to produce a statement indicating that large gold bars were considered to be articles rather than substances. The reason for this was that when gold is used as a raw material for eg, the jewellery industry, it is melted and alloyed. It was felt that it would therefore be simpler to allow those Members which considered that they needed to pre-register to do so with the certainty of them subsequently registering rather than having a period of uncertainty as to the type of gold and the tonnage band that they would have to declare.

ANNUAL PARTY

The LBMA's annual party for staff at Members and Associates will take place at the Eight Club, on 26th February. Contacts at Member and Associate companies have been sent a form asking for them to register the participation of their colleagues. The event will be subsidised by the LBMA with the result that the charge per person will be £25. As the venue's capacity is limited, there will be a limit on the number of staff which each Member or Associate company can register for the event (15 for Market Makers, 10 for ordinary Members and 5 for Associates). ■

VACANCY on the LBMA Executive

Are you interested in joining the LBMA Executive team? The LBMA is searching for someone with knowledge of precious metals and good communication and computer skills. Job description and further information will be available shortly. To register your interest, please contact the Chief Executive, Stewart Murray, by phone or email.

Market Moves

John Chan to **MKS Finance, Singapore**

MKS Precious Metals (Singapore) Pte Ltd will be supporting MKS Finance SA regional offices and services in countries where MKS does not have an office. The new office will be headed by John Chan. John's last appointment was Managing Director of Commodities and Banknotes at DBS Bank in Singapore. Prior to DBS John's business experience included 26 years heading up N M Rothschild in Singapore.

Mike Marsh to **Baird & Co, London**

Mike has rejoined Baird & Co Ltd on their sales and trading desk. Mike has been in the bullion market since 1977, most recently with Scotiabank and Baird. Mike left at the end of 2002 to take travel and pursue other interests, and due to changing plans has returned to help with Baird's continuing expansion.

Marjorie Nadal to **Credit Suisse, London**

Marjorie has joined the commodities team of Credit Suisse and we will be running the Precious Metals Options business in London. Marjorie joins Credit Suisse from Lehman Brothers where she was trading Precious Metals and Exotics. Prior to that, Marjorie ran Exotics trading for Commodities at Calyon UK.

DIARY OF EVENTS

FEBRUARY

24
57th Minesite Forum
London
T: +44 207 562 3381
emma@minesite.com
www.minesite.com

26
LBMA Annual Party
London
T: +44 20 7796 3067
F: +44 20 7796 2112
collett.roberts@lbma.org.uk
www.lbma.org.uk

MARCH

23-25
Third LBMA Assaying and Refining Seminar
London
Details on page 10

23-27
Asia Mining Congress
Singapore
www.terrapin.com
T: +65 6322 2700
F: +65 6223 3554

APRIL

7
GFMS Gold Survey 2009
Johannesburg, London, Toronto
T: +44 20 7478 1750
www.gfms.co.uk

23
GFMS Platinum and Palladium Survey 2009
Johannesburg, London
Details as above

MAY

26
World Silver Survey 2009
New York
T: +1 (202) 835-0185
mfreese@silverinstitute.org
www.silverinstitute.org

Steady as She Goes

Editorial Comment by Martyn Whitehead, LBMA Vice Chairman

Looking back at the dramatic developments affecting all markets in 2008, there were a number of cases where trading almost completely broke down in the face of uncertainty about the value of the assets underlying these markets. Whilst the most obvious example was the sub-prime mortgage market, the same could be said for the CDS market and even LIBOR looked very shaky at one point. Precious metals have also seen wild fluctuations, especially in the PGMs and silver.

It is notable that by comparison, the gold market has been a beacon of steadiness though even here, volatility was the order of the day. Thus, as measured by the average change in the daily price, this was double the level seen in the previous two years. Somewhat surprisingly, however, the overall trading range at around 34% of the year average price was little changed from what was seen in 2006 and 2007. Relative to other metals, gold's rollercoaster ride has been almost comfortable.

This raises the question of why gold has been able to demonstrate such relative stability. There are two aspects to answering this question. Firstly, concerning the market's customers, the widespread perception of gold's renewed safe haven status has meant that private investors have continued to buy or hold gold, central banks have either maintained their positions or at least sold less than in previous years while mining companies have not been tempted to engage in large-scale forward selling. No one can expect that gold demand, for instance in electronic products or jewellery, will remain unaffected by the current recessionary tendencies in most of the world's economies. But the investment nature of much of the gold sold in the form of jewellery will undoubtedly mean that the impact of recession is somewhat muted.

The second aspect concerns the way in which the professional wholesale market has reacted to the credit crunch and to the changing needs of its customers. It is fair to say that all market participants have been stress-tested (in a few cases to destruction) by the events of the last year. In these circumstances, mitigating credit risk and maximising the efficient use of capital have become urgent topics. Nevertheless, many of the leading players in the London bullion market are amongst the strongest of financial institutions. Given the emphasis on trading with sovereign institutions in the gold market, they have to be. In years past, some customers developed a taste for more exotic derivatives but more recently, the favoured products in the gold market have essentially been rather simple in nature – spot, forwards and more or less vanilla options – but these have still allowed traders to provide customers with the flexibility which they need. In the London market, the combination of a tried and tested clearing and vaulting system and the transparent and trusted fixes together provide the market's customers with a feeling of confidence about the underlying asset. One relatively new product, the ETF, has certainly contributed to broadening the interest in gold as an investment and this too has clearly helped to maintain levels of trading activity. The strength of the London market has been not only that customers have been able to put on positions but that they have been able to exit from them. Taking a somewhat wider view of London, its role in financing trade and mining activity continues to be a very important adjunct to the trading activity which takes place here. With a supportive and effective regulatory system, it is hard to see how London's role could be replaced.

Just as gold survived the 1930s depression, it is showing every capability of being a safe haven for investors during the difficult period which lies ahead in 2009. ■

Forecast Winners 2008

Prizes Donated by PAMP SA

by Ruth Crowell, LBMA Executive Coordinator

Congratulations go to all three winners, Frederic Panizzutti, Tom Kendall and Bob Takai who have taken home a one ounce gold bar for each metal won and in Bob Takai's case, two bars! Also our thanks to **PAMP SA, Switzerland**, for their generous donation of the prizes and to all who took part in the survey.

Despite a year of volatile trading, contributors to the 2008 Forecast had an excellent year in terms of the accuracy of their predictions. In a record year for gold, **Frederic Panizzutti**, MKS Finance SA won the gold prize with an exact forecast of $872. Although silver did not break any records, the 2008 average came in at $14.99, and **Bob Takai**, Sumitomo Corporation, won his first prize with a predicted average of $15.00. **Tom Kendall**, Mitsubishi Corporation won the prize for platinum with a prediction of $1,575 just $1 below the outturn for the year of $1,576. For palladium, Bob Takai, landed his second prize, with a forecast of $350, just $2 below the outturn. The 2009 Forecast is included with this issue of the *Alchemist*. If you are interested in contributing next year, please email alchemist@lbma.org.uk. ■

Tom Kendall, Mitsubishi Corporation, receives his one ounce PAMP gold bar from Stewart Murray, LBMA Chief Executive

Charitable Giving

by Ruth Crowell, LBMA Executive Coordinator

The LBMA has been involved in charitable giving since its creation in 1987. This initially consisted of small donations to charities in memoriam of past members of the market. However, until 2001 the LBMA did not consider it appropriate to make charitable giving a significant part of its expenditure in that its funds belong to its members who have their own programmes for supporting various charities.

Sarah Longhurst with her mother, Hilary, after the 2008 Race for Life

"It was amazing how the Gold market supported Sarah, when we reached out to them last year. Donations from members & friends from Africa, Australia, London, Switzerland and the US were received. Many thanks to the LBMA and all the members who supported her." – David Longhurst

In 2008, the LBMA contributed to the fund-raising efforts of David Longhurst's daughter, Sarah, who raised a total of £27,360 for cancer research by taking part in the sponsored run "Race for Life". Sarah will be running again this year. Further information can be found at www.raceforlifesponsorme.org/sarahlonghurst.

In 2001, LBMA charitable giving was put onto a different footing when a system of fines was agreed by GOFO contributors whereby they would pay a fine to the LBMA if they failed to contribute to the GOFO page more than three times in a month. It was agreed that up to half of these fines could be donated to charity. More recently, SIFO contributors have adopted the same system which has swollen the pot of funds available.

Since 2001, the LBMA has donated over £35,000 to various charities, mostly those in which members of the market have been involved. Examples of LBMA charitable giving in the past are listed to the right.

Alongside its charitable giving, the LBMA has also sponsored bursaries for the support of earth science students (ie studying subjects such as geology, metallurgy and minerals science). From 1988 to 2005, LBMA provided funds in alternate years to two of the leading UK mining schools, the University of Exeter (the Camborne School of Mines) and Imperial College (the Royal School of Mines) in London. These funds were to support post-graduate students (one each year) usually from developing countries which had mining industries in the precious metals sector. In 2004, the Management Committee decided that the funds should be used to support groups of honours students in the University of Witwatersrand School of Geosciences in Johannesburg. ■

Past LBMA Donations

Starfish an international charity helping to support children orphaned or affected by HIV/AIDS in Southern Africa

Hospice Association of the Witwatersrand, South Africa careing for the needs of patients facing life-threatening illnesses and their families

Look London providing aid and information to visually impaired children

Essex Spina Bifida in memory of Andy Hoare's son

Action Aid a charity with projects in over 40 countries, providing food, shelter, work, healthcare and education for the needy

Cancer Research in memory of Terry Smeeton

Friends of Hillside a school that caters for pupils that have severe learning difficulties

Arthritis Research in memory of Chris Saubergue

The Alchemist is published quarterly by the LBMA. For further information please contact Stewart Murray, LBMA Chief Executive
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

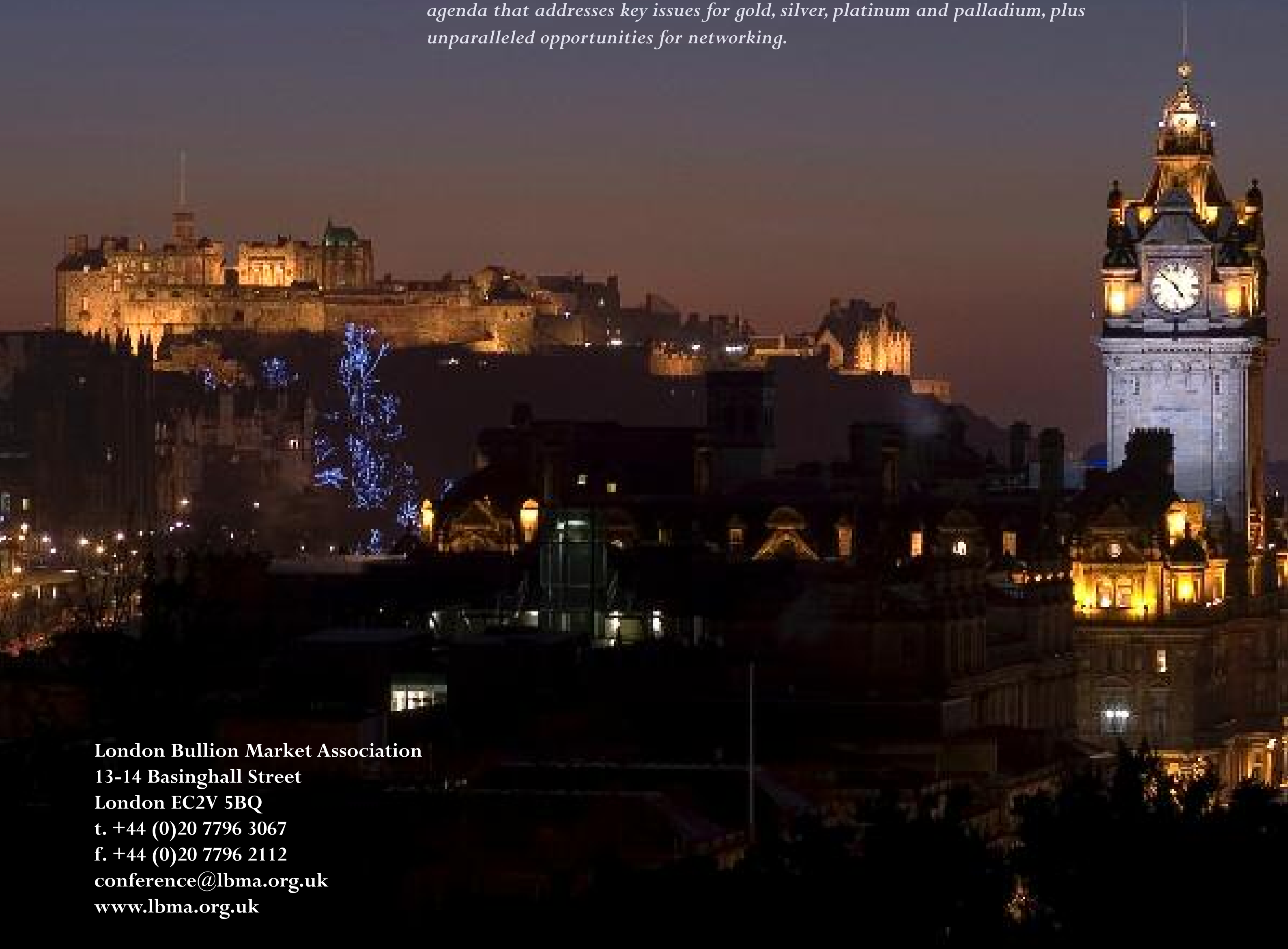
The conference by the industry for the industry

The LBMA Precious Metals Conference 2009

1 - 3 November 2009
Edinburgh

Will investors continue to see gold as a safe haven? How will jewellery markets be affected if the high gold prices seen recently are sustained? How will the slump in the auto industry affect PGMs? Will producers return to hedging and if so how will central banks respond?

For answers to these and other topical questions, mark your diaries for the tenth annual LBMA Conference. The programme includes a wide-ranging agenda that addresses key issues for gold, silver, platinum and palladium, plus unparalleled opportunities for networking.



London Bullion Market Association
13-14 Basinghall Street
London EC2V 5BQ
t. +44 (0)20 7796 3067
f. +44 (0)20 7796 2112
conference@lbma.org.uk
www.lbma.org.uk



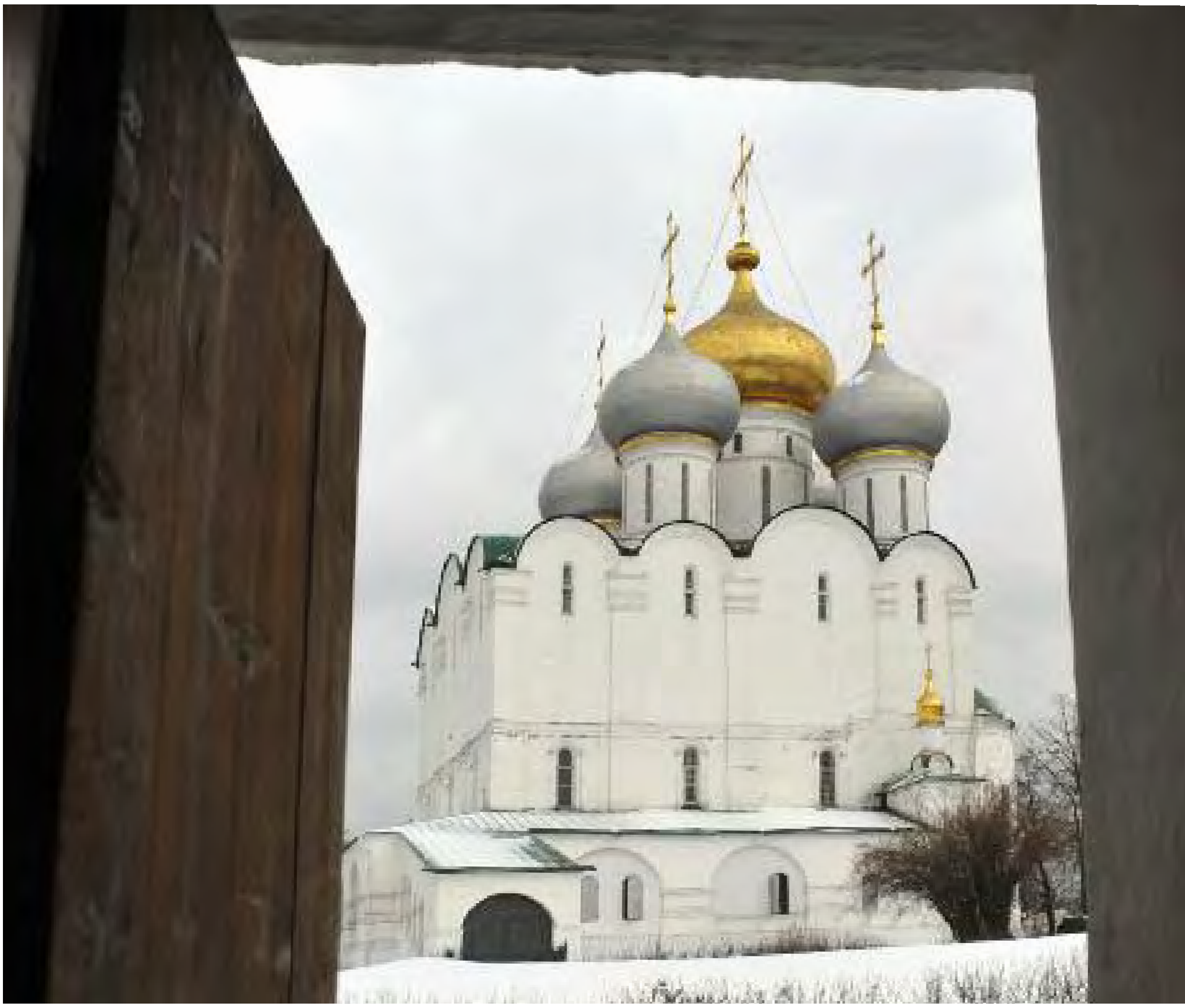
There's a place for all market players at the LBMA Conference - registration opens late July 2009

Alchemist

LBMA

The London Bullion Market Association ISSUE 54 April 2009

In this issue



A window into the Russian gold market – *Alchemist* issue 54 focuses on both the production and the investment side of the Russian bullion market, with articles from Andrey Pikanovskiy of Polyus Gold Mining Company (page 3) and Mikhail Leskov of NBL Gold (page 7).

PRECIOUS METALS. SOLID FOUNDATION.

GOLD AND SILVER FUTURES. NOW ON NYSE LIFFE U.S.

INTRODUCING NYSE LIFFE U.S., THE NEW U.S. FUTURES EXCHANGE OF NYSE EURONEXT. BUILT TO OFFER THE MOST EFFICIENT AND FLEXIBLE WAY TO TRADE PRECIOUS METALS. TRADE PHYSICALLY DELIVERABLE GOLD AND SILVER FUTURES CONTRACTS, AND THEIR MINIS, TOO. ADD PRECIOUS METAL ETFS AND YOU'LL ENJOY UNIQUE DISCOUNTS AVAILABLE ONLY ON OUR GLOBAL EXCHANGE PLATFORM. PRECIOUS METALS FUTURES ON NYSE LIFFE U.S.: ANOTHER WAY NYSE EURONEXT POWERS THE EXCHANGING WORLD. TO LEARN MORE, E-MAIL METALS@NYX.COM OR VISIT www.nyx.com/nyseliffeus

NYSE Liffe U.S.

©2009 NYSE Euronext. All rights reserved. NYSE Euronext and its affiliates do not recommend or make any representation as to possible benefits from any securities, futures, investments, or third-party products or services. Investors should undertake their own due diligence regarding their securities and investment practices. This advertisement may contain forward-looking statements regarding NYSE Euronext and its affiliates. Such statements are based upon the current beliefs and expectations of management and are subject to significant risks and uncertainties. Actual results may differ from those set forth in the forward-looking statements.

The Russian Bullion Market: Bursting Through the Asphalt

By Andrey Pikanovskiy, Head of Treasury and Sales, Polyus Gold Mining Company

In Russia, the circulation of precious metals has been historically regulated on the basis of selective authorisation, in which a transaction is deemed to be prohibited unless expressly allowed. With the introduction of liberalisation, bullion trading has evolved and Russia has become an integral part of the global bullion market. However, numerous restrictions still hamper the development of market infrastructure.

History and Regulation

The foundations of the modern Russian bullion market were laid down in 1993-1994, just after the formation of a two-level banking system consisting of the Central Bank of Russia and numerous commercial banks, both state-owned and private. In 1993, the Central Bank granted several commercial banks special permission for bullion transactions.

By decree No. 756 dated 30 June 1994, the Federal Government outlined basic principles of circulation of gold and silver in the form of bars, raw materials, scrap, half-finished and finished products (with a minor exception of jewellery items). Along with foreign currency, precious metals formed at that time the special group of assets (legislatively defined as "the currency values") and their circulation was regulated very strictly according to the basic principle of "transaction prohibited, unless expressly allowed". Later on, a number of liberalisations were introduced: Federal Law No. 41-FZ, "On precious metals and precious stones", was adopted on 26 March 1998. The currency exchange control was substantially eased and precious metals were removed from the "currency values" category. The state monopoly of the export of fine gold and silver was abandoned in 1997 and the same has been done recently with regard to the platinum group metals.

Nonetheless, regulation of the Russian bullion market remains rather strict and convoluted:

- All market participants (who must be Russian residents) are categorised into several groups such as producers (mining, scrap collecting and processing companies), refiners, banks, industrial consumers (end users) and investors. The permitted types of transactions between members of various groups are specified – e.g. investors and industrial consumers can buy and sell fine gold and silver bars only from and to banks (or through them, on a commission basis). Along with the Federal Government, commercial banks enjoy the exclusive right of direct dealing with the Central Bank.
- Raw materials (both mined and extracted from scrap) must be delivered by producers only to specially authorised refiners, which process their metal into bars. Refiners provide their services as contractors; therefore, the owner of the raw material retains his title to the fine metal.
- The specially authorised federal body (Gokhran of Russia under the Ministry of Finance), as well as regional authorities with similar functions, enjoy the right of first refusal on all refined precious metals sold by producers. On the other hand, this right is subject to the buyer's obligation to conclude the contract in good time and to provide the producer with partial advance payment. Until recently, Gokhran refrained from making advance payments in view of complex and unclear security requirements and restrictions on the use of funds set forth by the Government and the Ministry of Finance; so it was not so easy to implement the right of first refusal in practice.
- Some tax exemptions have been introduced in order to facilitate circulation of precious metals as financial assets – sale thereof from producers to banks and to Gokhran of Russia is taxed at 0% VAT rate. Interbank transactions are not subject to VAT. Neither are sales of precious metals from banks to investors (provided that the bank retains physical control over the metal sold). Sale of certain types of bullion coins is also tax-exempt. However, the first attempt to reproduce "the black box" model of the London bullion market has not been completely successful; several revisions to the Tax Code have had to be adopted during the last 10 years in order to clarify various uncertainties.
- Refined gold and silver may be exported by the Central Bank, commercial banks, producers and other entities. Banks may act both on a proprietary and commission basis and are entitled to "general" (i.e. not linked to particular contract) export licences, while other exporters may sell their own metal only and a separate licence is required for every contract. No export duties are in place now, while imports are taxed at 20%.
- The official Gold Reserve of the Russian Federation is formed of fine (monetary) gold in bars and consists of two parts: one is held by the Central Bank and the other by the Ministry of Finance (as part of the State Reserve of precious metals and precious stones). The Central Bank makes decisions on the use of its part of the gold according to procedures agreed with the Federal Government. The Government also adopts the annual plans on use of gold for the Ministry of Finance.
- Various forms of control and licensing are conducted by numerous authorities. The Central Bank regulates banking transactions, capital adequacy, liquidity and accounting. The Ministry of Finance and its subordinated bodies manage the State Reserve of precious

Figure 1
Top: the Sower (10 roubles, fineness 900, fine gold content 7.742g).
Bottom: the St George (50 roubles, fineness 999, fine gold content 7.780g).

metals and precious stones, provide federal assay supervision and develop and enforce regulations for safe-keeping, transfer, acceptance and inventory of precious metals. The Ministry of Industry and Trade is in charge of export licensing and the Federal Agency for Financial Monitoring requires exhaustive reporting as part of its anti-money-laundering functions, etc.

It should be noted that the slightest failure to comply with the rules can result in very serious punishment – administrative penalties, confiscation of precious metals and funds received, and even imprisonment. If the amount of an illegal transaction exceeds 250 thousand roubles (which is the equivalent of less than 10 troy ounces of gold at the current price), the violation is qualified as "material", resulting in the imprisonment of the guilty parties for up to seven years.

Trading and Settlement

As in London, bullion transactions in Russia are usually made on an over-the-counter basis. Six or seven prime-rated commercial banks deal regularly as professional traders and form the core of the market. Their client base is made up of smaller banks, producers, industrial consumers and investors. Service functions are performed by refiners and carriers of valuable cargo. The market participants are not associated into any kind of self-regulated organisation, neither has a standard form of documentation been adopted, and no obligatory market-making is practised. The most common and outstanding problems (related to regulation, tax issues, etc.) are usually discussed on a case-by-case basis between members of a special committee of the Association of Russian Banks.

The Russian State standard specifications for gold and silver bars are similar to the London Good Delivery specifications and require an even higher fineness of metal – at least 999.5 for gold (with 999.9 forming the major part of gold actually produced) and 999.8 for silver. Smaller bars of weight from one to 1,000 grams are also available; however, the cost of their production charged by domestic refiners is much higher than the tariffs of major foreign refiners, so they are traded usually at a considerable premium. Eight Russian refiners are listed by the LBMA as acceptable Good Delivery refiners for gold, and seven for silver.

Physical metal is traded mostly between producers, banks and industrial consumers. Investors use unallocated bullion accounts with banks and also purchase bars and coins for hoarding purposes. Banks usually pick up bars sold by producers directly from the refiner's warehouse. Interbank physical transactions are commonly settled through banks' own vaults or, alternatively, through the vault of a carrier.

There is no established clearing system for paper gold transactions: core banks may clear deals between the unallocated bullion accounts of their own clients but usually do not use loco Moscow accounts for clearing with other banks. This undeveloped settlement structure can be explained by the tax risks (some VAT issues are outstanding) and, probably, by a lack of serious demand for its further development. A bank's bullion liquidity is rather easily managed by means of physical transactions; its open positions arising from trades with domestic counterparties are usually balanced by loco London deals with major international bullion banks, and clients usually prefer to deal with the bank keeping their bullion accounts and do not require transfers to other banks.

Non-deliverable (cash-settled) gold and silver futures and options are traded on the RTS Exchange, but the volumes of trade are rather small. For example, in the first quarter of 2009, the most actively traded June gold contract averaged 311 trades per day, with a mean daily volume of 206 million roubles and 6,404 contracts (the size of a contract is one troy ounce). For the same period, average daily open interest was 18,730 contracts or 709 million roubles.[1]

Pricing

In his trading practice, the author has many times been approached by foreigners hoping to purchase gold or silver in Russia at a considerable discount. There seems to be an erroneous belief among the market community that, as the country is one of the world's top producers, metals here should be cheaper than elsewhere. It is perhaps timely to disabuse the Russian market's trading partners of this notion: the Russian Federation became part of the global bullion market more than 10 years ago; therefore, differences in price (or, in other words, location swaps) between Moscow and London, Zurich or other centres are limited by transportation expenses, cost of funding and other similar factors, which usually do not result in substantial differentials.

As a rule, in Russia, the price of a metal is determined on the basis of the London spot market or fixing price. In wholesale trading, quotations are made in terms of a premium or discount to London (expressed as a percentage or, alternatively, in cents per troy ounce). For example, a lot of 10-20 thousand ounces of gold in standard Good Delivery bars sold ex-works refinery located somewhere in Siberia would probably be quoted at a discount of about 20 US cents per ounce; in Moscow, the same lot may be quoted flat or even at some premium. Payments between residents can be made in roubles only, so the final price is calculated through the prevailing market exchange rate. The weighted average rate of the Moscow Interbank Currency Exchange for trades valued "today" or "tomorrow" is usually taken as a benchmark.

It may be interesting to look at the

Figure 3: Gold Demand
(Union of Gold Producers, expert evaluation)

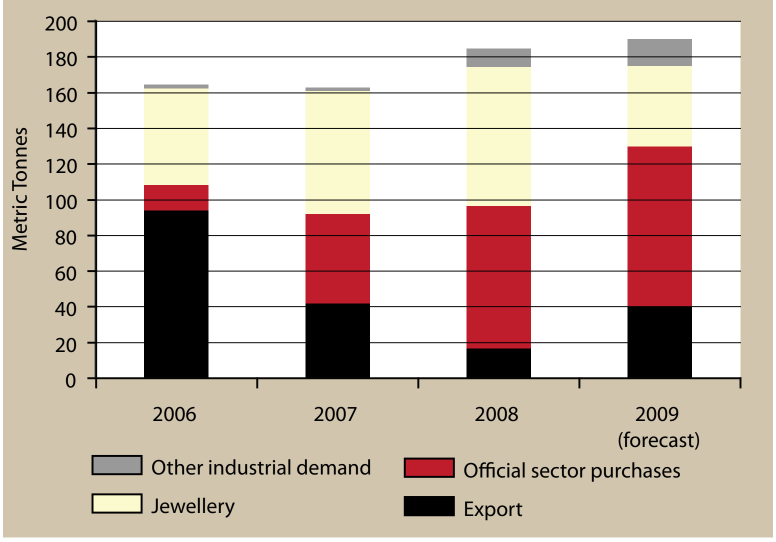
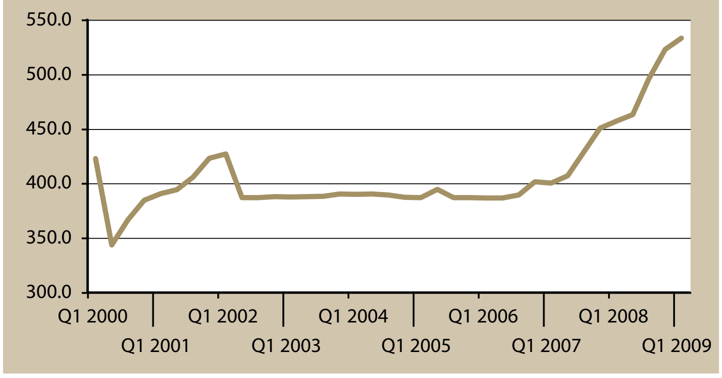


Figure 2: Gold in International Reserves of the Russian Federation



evolution of location swap differentials for gold and to consider the major driving forces that determine them:

- In 1993-1996, weak industrial and investment demand, combined with still relatively stable mining supply, over-regulation, export restrictions and the reluctance of the official sector to increase gold reserves, created a substantial surplus of metal on the domestic market, which resulted in discounts of several percent compared to the London market price.
- In 1997, the Central Bank started regular purchases of gold and silver from commercial banks, setting its bid at 2% discount, which formed a new benchmark.
- In 1997-1998, with the abolition of state export monopoly, the local prices were governed mostly by export costs and the discount fell rather quickly to 1.0-0.8%.
- In 1999, an export duty of 5% was introduced by the Government, which resulted at first in an increase in the discount (approximately up to 6-7%). In time, however, increased demand from domestic industry (mainly for jewellery), as well as opportunities arising from the regime of duty-free trade with CIS countries, lowered the discount again to less than 3%.
- In 2002, the export duty for gold was removed, and with the continuous rise of the global gold price, easier export regulation and stronger domestic industrial and investment demand, the location swap gradually settled at its present level.

Structure of Demand

Thin (and sometimes negative) margins between the prices of the international and Russian bullion markets resulted from a significant increase in domestic demand during the last few years (Figures 2 & 3). This was based on rising industrial consumption, purchases by the Central Bank and also individual investment activity (buying bars and coins for hoarding).

According to the expert evaluation of the Union of Gold Producers, compared to 2006, domestic industrial consumption of gold rose more than 50% and reached 56 tonnes of fine metal in 2008. For the same period, official gold reserves rose 35% (up to 522 tonnes as of the end of 2008).

Some idea of individual investment activity may be taken from reports of Sberbank of Russia (the Savings Bank of the Russian Federation, wholly owned by the state, which has the largest retail network covering all the country's territory). At the beginning of 2008, the bank announced it had more than 130,000 unallocated bullion accounts – their total balance being equivalent to more than 20 tonnes of gold. As of 1 December 2008, the bank held 280,000 accounts with a total balance of 51.8 tonnes in gold equivalent; by the end of first quarter of 2009, these figures had risen to 334,000 accounts and 54 tonnes in gold equivalent. The bank's total sales of gold bars to individuals for 10 months of 2008 reached six tonnes, which was three times greater than for the whole year 2007. The major share of investment demand is held by gold (70% of total sales), while other metals are less popular: silver takes 17%, platinum 9% and palladium 4% (figure 4).

It should be noted that, under the current regulation, assets kept in an unallocated bullion account are even less protected than common ("monetary") bank deposits, because bullion accounts are not covered by the state deposit insurance programme. In view of this, the scale of individual investments made through unallocated bullion accounts becomes even more impressive.

Bullion coins are very popular too – a replica of the old-time Soviet Chervonets (the "Sower", figure 1 on page 3) was returned to circulation by the Central Bank in 2001 at a 10-rouble face value. The entire issue of 6,565,000 coins (produced between 1975 and 1982) completely sold out a couple of years ago. With 7.742g of fine gold in every coin, that makes 50.8 tonnes of gold bought mainly by individuals. The current investment coin, the 50-rouble golden St. George, is also in real demand at the moment. With such an increase in domestic demand, gold export naturally declined sharply: from 94 tonnes in 2006 to approximately 17-20 tonnes in 2008.

Market Perspectives

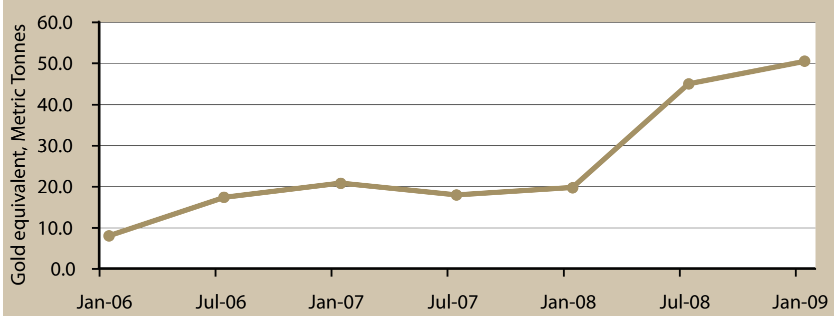
For 2009, however, the outlook is still in question. The recent spike in demand has been based mostly on the effects of general economic growth (in the first half of 2008) and the massive run on savings with the devaluation of the rouble (in the second half of 2008 and beginning of 2009). The sharp fall in disposable income and the substantial[2] increase in the rouble-denominated gold price undermined both industrial and investment demand. In view of this, a decrease in domestic consumption of gold and some increase in exports of gold should be expected for 2009. The Russian Assay House just published their Q1 report on jewellery consumption: gold fell to 10.3 tonnes (down 44.6% on Q1 2008) and silver rose to 56 tonnes (+54.7%). The situation will also depend very much on the official sector, which it is hoped will remain an active buyer. Following the Central Bank, the Government declared its intention to increase purchases of gold through Gokhran of Russia and even to provide producers with partial advance payments in order to replace collapsed financing from commercial banks.

Nevertheless, there is no doubt that due to its integrity with the international bullion market, the market of Russia will provide the required liquidity and service to all its participants and, particularly, to gold producers, hopefully allowing them to benefit from increased global demand for their product. ■

[1] Source: RTS Exchange, www.rts.ru/ru/forts/commodity/

[2] About 30% from average for Q1 2009 to average for Q4 2008.

Figure 4: Balances of unallocated accounts with leading Russian bullion banks (resident clients, excluding banks).



Source: the Central Bank of the Russian Federation

Andrey Pikanovskiy *is the Head of Treasury and Sales with Polyus Gold, Russia's largest gold mining company.*

Before joining Polyus in 2004, Mr Pikanovskiy worked with the Precious Metals Division at Unexim Bank and the Treasury Department at Rosbank. In addition to bullion banking activities, he has regularly been involved in professional discussions on various problems of market regulations and taxation.

Mr Pikanovskiy graduated from the Moscow Institute of Physics and Technology (1995, Applied Mathematics and Physics, Master degree) and Finance Academy under the Government of the Russian Federation (2002, Finance and Credit).

Thanks to our clients UBS has again been ranked No. 1 for precious metals in the *Risk Magazine* annual survey: 1st overall and 1st in six categories.

Active in the physical and non-physical markets for almost a century, our dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

- Gold, silver, platinum and palladium
- 24h global service from hubs in Switzerland, Singapore, the US and the UK
- Physical precious metals from our Swiss vaults
- Structured products and tailor-made hedging solutions
- Full range of OTC derivatives
- Coins – trading, handling and storage

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich:	+41-44-239 4111	**Singapore:***	+65-6495 8474
Lugano:	+41-91-801 9990	**Stamford:***	+1-203-719 1178
Geneva:	+41-22-389 5335	**London:***	+44-207-567 6758

*non physical only

Investment
Bank

You & Us

UBS

© UBS 2009. All rights reserved.

Mining Investment Climate in the CIS

By Mikhail Leskov, Roman Schetinsky and Anna Kryuchkova, NBL Gold

The next stage of gold mining consolidation in CIS countries will likely take the form of alliances with foreign companies that are favourable for both parties – foreign stakeholders will get access to reserves and local companies will gain in experience. Given the wealth of professional and mineral resources, long mining history and future mine lives within CIS countries, the former Soviet Union has the potential to become a new world centre for the financing of gold mining. However, overcoming the legacy of the Soviet regulatory system will take time.

A Russian 250l bucketladder dredge and 6m^3 walking dragline, waiting for the season to restart in -50^{o}C mist at Kolyma.

History

Commercial gold mining has always been an important activity in the area known as the former Soviet Union. Although there are numerous examples of historical precious metals mining within this vast land, it was only about 300 years ago that mining began to develop and concentrate in those areas that are considered today to be the gold mining centres of Russia and the other CIS countries. The first regular operation was established at Nerchinsk silver mines in the Trans-Baikal region, producing not only silver but also gold from a hardrock deposit. In the late 18th century, it was joined by gold mines in the Urals and in the early 19th century, placer gold deposits in the Urals, the Yenisei range, the Lena river basin, the Amur and the Khabarovsk regions. By the end of the 19th century, gold mining in these areas was significant and expanding at a steady rate.

At the turn of the 20th century, economic operations were bolstered by new technology: flotation and amalgamation followed by cyanidation and processing plants equipped with steam engines. Local small-scale producers began to transform into commercial concerns. However, the Russian Revolution of 1917 and the Russian Civil War prevented them from progressing for the next decade. It was not until the late 1920s and early 1930s that the new authorities began to pay attention to a revival of gold mining, primarily by encouraging redevelopment of alluvial mines in the former mining centres and by actively trying to develop the industry in new areas such as Siberia.

The economic pressures of World War II drove significant development of gold mining in the eastern areas of the country. During the war, progress took place in Kazakhstan, Uzbekistan and Tajikistan, as well as after the war, in the other republics such as Georgia, Armenia and Kyrgyzstan. The late 1950s and early 1960s are characterised as one of the first peaks in intensive growth of gold mining in the USSR: a great number of new hardrock operations were launched at that time together with re-equipped alluvial mines. The second peak in the Soviet period took place in the late 1970s and 1980s: new mines became operational all over the country, from Ukraine and Transcaucasian republics to the Far East and Chukotka.

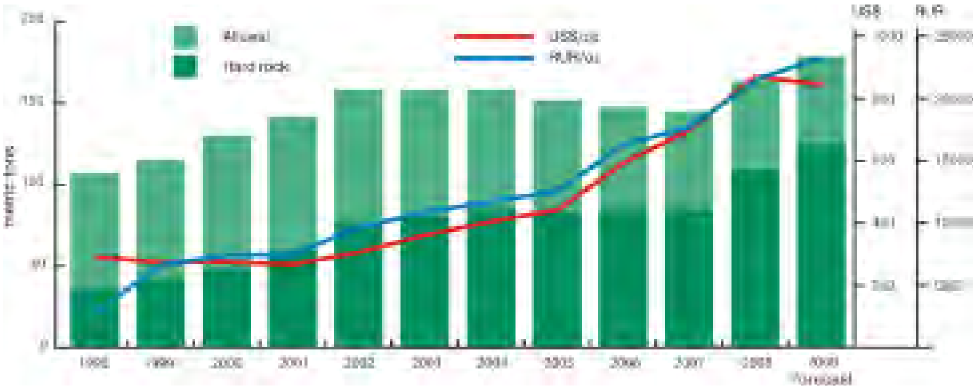
Doré bars at GV Gold, the first commercial hardrock gold mine in Irkutsk, Siberia.

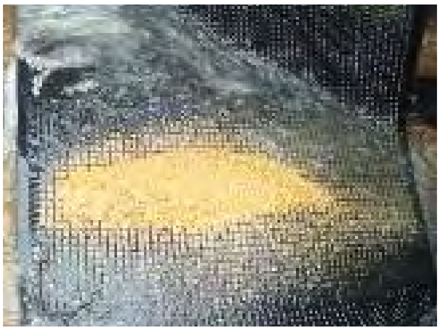
After the collapse of the Soviet Union, gold mining in many former Soviet republics declined, as new financing schemes took time to emerge. While the local industry lacked initiative and means, foreign companies that had heard about plentiful treasures behind the iron curtain swept in. Numerous joint ventures were established with Canadian, American, South African and Australian companies throughout the territory – from Transcaucasia and the middle Asian republics to Russia itself. Some of those joint ventures were only briefly successful; some are still in business. Nevertheless, many of these companies sharply reduced their activities in the financial crisis of 1998, ceding the initiative to either local or junior companies.

Current Situation

The years of 1997-1998 were a low point for gold production in most ex-Soviet republics. Russia was no exception, producing about 120 tonnes of gold at that time. Of this, a little over 100 tonnes was from primary sources, the rest was a by-product of copper and nickel operations and from scrap. During that period, about 80% of Russia's primary gold

Figure 1: Alluvial and hardrock gold mining in Russia from 1998–2009





Alluvial gold – still a significant proportion of Russian annual gold output. Khabarovsk region.

output came from placer mines following the early Soviet structure of gold mining.

However, at the turn of the 21st century, the pattern began to change, as the balance shifted towards lode gold mining. It is worth mentioning that this shift concerns an increase in the percentage of hardrock mining rather than a reduction of placer gold, as Russia's placer potential is still far from depleted. Its vast reserves can sustain the current scale of placer mining for many years to come, although seasonal weather conditions can cause short-term fluctuations (see details on figure 1).

Other former USSR countries did not possess such favourable geology. Even in the Soviet years, the richest placer areas in Kazakhstan and Tajikistan were small compared with those in Russia.

Russian placer mining has always been characterised by the seasonal nature of placer gold operations, their location in extremely remote regions and the relatively small reserves of individual mines. Although they boost overall gold production, they are not beneficial for the long-term development of economic gold mines. Consequently, as far back as the Soviet period, active and purposeful efforts have been undertaken to explore lode deposits, near placer centres if possible, and to construct large year-round gold mining operations based on such lode gold reserves. During the Soviet period, only a few projects of this kind were fully developed. Nevertheless, the reserves and resources identified at that time still remain the base for development of new and existing mines.

Many of the Soviet mines are still in operation today (see figure 2), with varied success. For example:

- Aldanzoloto in southern Yakutia (now part of Polyus Gold) produced 12 tonnes/year of gold at best during Soviet times (six tonnes from placers and six tonnes from the Kuranakh ore field);
- Sovietsky mine, which originally started operation at the Sovetskoe deposit and was the first to mine gold ore at the now famous Olympiada deposit in the Krasnoyarsk region;
- Baleizoloto in Transbaikalia, which used to mine the Taseevskoe lode gold deposit over a long period;
- Karamken mine (closed in the 1990s) at a lode gold deposit of the same name in the Magadan region, which maintained its status as the largest mine through its entire life in that extremely abundant gold area;
- A series of other smaller producers not well known outside the region.

Two well-known mines in the Urals were radically modernised and developed in the Soviet period. Regular economic mining has continued for over 250 years at Berezovskoe mine on a lode gold deposit of the same name in the Sverdlovsk region. Yuzhuralzoloto Group began mining ore at the Kochkar gold deposit in the Chelyabinsk region and, in the

Figure 2: Gold mining projects in Russia and the CIS

late 1990s, began its operation at the Svetlinskoe deposit. In the early 1990s, a joint venture was established with RTZ (now Rio Tinto), and since then, it has expanded its assets with a series of projects in the Krasnoyarsk region, Khakassia and Transbaikalia.

The Muruntau mine in Uzbekistan is the largest gold operation in the former Soviet Union, producing 50 tonnes of gold per year. In addition to Muruntau, for almost 20 years, a joint venture comprised of Navoi Mining (the Uzbekistan state company holding the property) and Newmont Mining has been producing up to 17 tonnes of gold from its mine dump with heap leaching.

A further two large-scale joint ventures were launched in the mid 1990s: Kumtor with state-owned Kyrgyzaltyn and Cameco (now Centerra) in Kyrgyzstan; and Kubaka with Geometal and Cyprus Amax (later replaced by Kinross Gold) in Russia.

At the same time, another operation, currently the largest in Russia (and financially assisted by the Government), was launched at the Olympiada deposit by the Polyus mining co-operative. It was acquired by Norilsk Nickel and then restructured into the independent company Polyus Gold. Now Polyus Gold is a major Russian gold mining company and it is currently acquiring KazakhGold, one of the key gold miners in Kazakhstan (known as Kazakhaltyn before listing on London's AIM market).

Between 1994 and 1998, a future reserves base was developed for several large gold miners within the former USSR, which is described below. Among these miners was the second-largest gold producer in Russia – Peter Hambro Mining, established in 1994 under the name of Pokrovsky Mine when granted a mining licence for its flagship, the Pokrovsky deposit in the Amur region.

Highland Gold originated in 1998 as Mnogovershinnoe LLC, holding a licence to mine the Mnogovershinnoe gold deposit (listed on AIM as MNV). Another key player was SVMC, with a mining licence for the Nezhdaninskoe gold deposit, which was also founded in 1998, and acquired by Celtic Resources and subsequently listed on AIM. However, it later transferred its right to mine at Nezhdaninskoe to Polyus Gold, and recently the SeverStal corporation took over Celtic Resources.

The list continues with Amikan, holding a licence for the Veduga project, which was established in 1997 first as a part of Trans-Siberian Gold and later, when AngloGold Ashanti acquired the company, allocated into a joint venture with Polymetal. One more producer is Polymetal itself, which took the Vorontsovskoe deposit in the Urals under its control after the financial crisis of 1998, when Cyprus Amax was forced to abandon it. Later Polymetal acquired the giant silver deposit Dukat and a few more mineral properties in the far east of Russia.

Finally, the above-mentioned KazakhGold (ex-Kazakhaltyn) is also included. Having accumulated several interesting mineral projects in northern Kazakhstan and established Charaltyn in the mid-1990s with Newmont Mining, it was later bought out by local businessmen. It was then turned into a large company in 2005-2006, with assets in Kazakhstan, Kyrgyzstan and Tajikistan, which were merged with Kazakhmys in 2007. There are also many more interesting producers that cannot be mentioned in this brief review.

The quantity of gold mined in the top five CIS countries from 1998 to 2008 is shown in figure 3.

With the exception of Ukraine, Armenia and Azerbaijan, all the former USSR republics have relatively large and modern gold mines. The gold prices versus average cash costs in Russian gold mining is shown in figure 4.

Figure 3: Gold mining in the CIS (1998–2008)

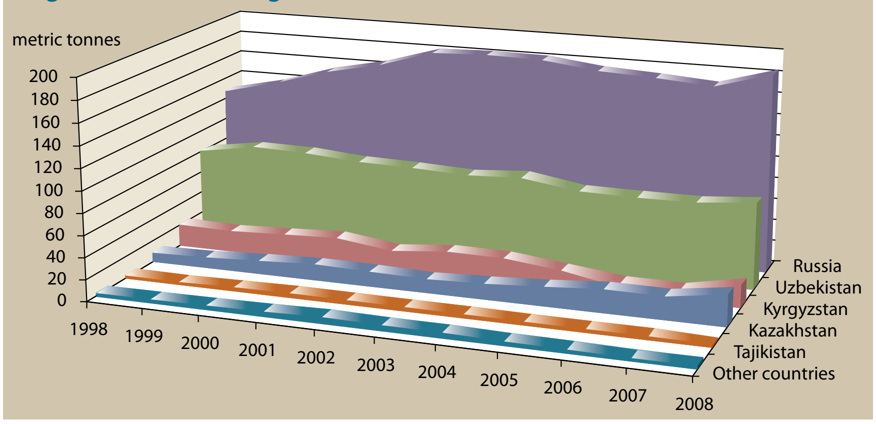
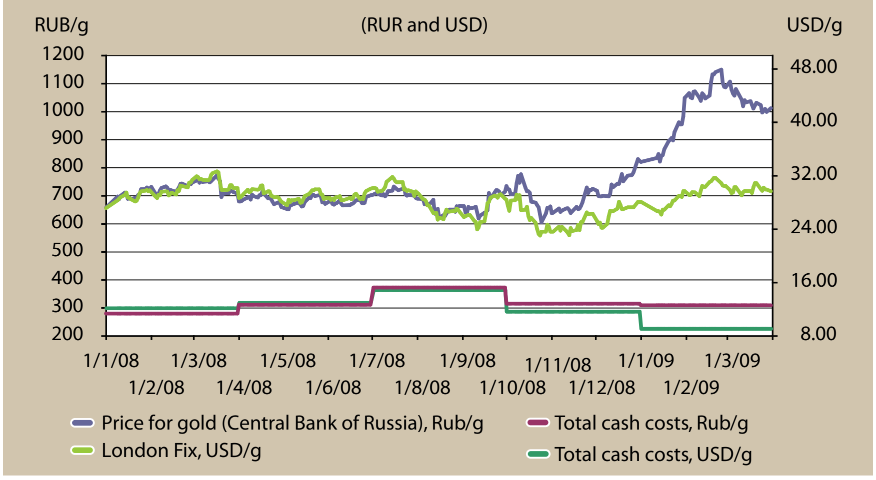


Figure 4: Gold price vs average gold mining cash costs in Russia, weighted from Q1 2008 (RUR and USD)



Legal Arena

Since the collapse of the Soviet Union, all of the countries that emerged from the Soviet system have undergone dramatic changes. At first, the regulatory environment and general situation in these countries was very similar, but as they have developed their precious metals markets (a 'sacred cow' in the Soviet system), they have became more open to private business. Many post-Soviet republics swiftly managed to organise more or less effective bullion markets with stable and often very different legislation.

For example, in Kazakhstan, the licensing procedure is on a contract basis while, in Russia, it is governed by administrative law. In those countries where mining played an essential role, the legislation was more developed. Therefore, the mining legislation of such countries as Kazakhstan, Russia, Kyrgyzstan, and Armenia is more elaborate, for example, than in Ukraine or Azerbaijan. But, unfortunately, more detailed does not mean perfect. The development of legislation is directly dependent on its enforcement, and the current changes of the legislative base in the CIS countries are mostly geared toward the protection of state precedence.

For example, oil-based currency inflation forced the Russian Government to limit the inflow of investments and, on 29 April 2008, a new federal law on foreign investment in strategically significant business entities was passed. "Strategic significance" includes companies dealing with geological exploration and the mining of mineral resources. This and

other current laws will negatively influence foreign investment in Russia. Nowadays, investment opportunities are less attractive all over the CIS, but only in comparison with the situation five to 10 years ago. Post-Soviet republics are as interested in inward investment as any other country, but not in occupation by foreigners.

Conclusion

The Soviet Union traditionally placed a high value on domestic mineral resources. It was largely its focus on military preparedness that drove the creation of the world's largest mineral resource base. Today, this resource base has been put to work for more civilian purposes, providing gold reserves for the mining industry in all post-Soviet countries.

Those countries with the most developed mining sectors – Russia and Kazakhstan – have the most experience. Elsewhere, gold-copper deposits in Azerbaijan have great potential despite the total absence of gold mining in that country. Also, the Ukraine has become attractive to investors because the market there appears relatively stable. The list of top producers changes frequently due to mergers and acquisitions. At this moment, Russia has more than four hundred producing companies, of which 20 produce more than 30,000 oz per annum. A further 50 companies produce between 5,000 and 30,000 oz, but the majority of these are small and only operate seasonally. It is quite natural that the sector is extremely fragmented.

Before the crisis, the creation of junior companies was highly sophisticated, with companies buying assets in different territories at different stages. This kind of asset portfolio allowed companies to profit from stock trading. The most successful example was the Canadian company Bema Gold (Kupol deposit), purchased by Kinross Gold for US$2.5 billion. Companies in Russia, Ukraine, Armenia and Uzbekistan have operated in a similar way.

Another model is the acquisition of deposits with reserves: for example, the Kubaka deposit (Kinross Gold) was sold to Polymetal in 2007. Lots of companies use this model, for example, ENRC and Charaltyn in Kazakhstan, and GeoProMining in Caucasus republics. The third, classical variant is when the company moves into production stage after exploration, for example, Peter Hambro Mining. It is the most labour-intensive model, but it ensures certain stability and a greater guarantee of success at each stage.

> *CIS countries have substantial in situ resources and reserves and, most importantly, large-scale assets with relatively long mining history and future mine lives.*

In terms of mergers and acquisitions in the CIS, real mega-deals such as Barrick and Placer Dome are still unknown and not likely to occur soon. In theory, similar mega-deals may be expected when large players temporarily find themselves in a difficult situation and become takeover objects. However, the price for such deals seems to be much less than that of Kinross-Bema.

NBL gold expects mid-sized players to follow a similar trend, but that they will arrange joint ventures with major companies and establish foreign alliances. Small companies, depending on their appetite for risk, are expected to merge with or acquire one another, but also to create joint ventures with mid-scale companies, possibly becoming takeover targets. Small producers will frequently be involved in asset merging, in conventional merging with geological exploration properties and, in particular, as mentioned above, in mergers of placer mines and hardrock exploration companies.

Though there remains great potential M&A activity in CIS gold projects, it will be some time before these happen. CIS countries have substantial in situ resources and reserves and, most importantly, large-scale assets with relatively long mining history and future mine lives.

Talking about long-term prospects, the next stage of gold mining consolidation in CIS countries is likely to take the form of alliances with foreign companies that are favourable for both parties – foreign stakeholders will get access to reserves and local companies will gain in experience by working with foreign professionals. The worldwide mining industry is currently facing the problem of a shortage of skilled professionals, including geologists, mining engineers and, most importantly, expertise in exploration and development of deposits. CIS countries are therefore in a unique position, as the personnel reserve of earth science graduates, deriving from the Soviet period will prove to be an asset for the global mining industry as a whole.

Moscow and Astana, although the capitals of mining in the CIS, have not yet turned into world centres for the financing of gold mining, like Johannesburg, London or Toronto. However, recent trends, as well as professional and mineral resources, suggest that in several years this may happen. ■

Mikhail Leskov *has been General Director (CEO) of NBL since 1993. He trained at the Moscow Institute of Steel and Alloys as a processing engineer with a focus on the design of gold treatment plants. His current focus is on special phases of works for mine and plant development such as bankable studies, cost and risk control and technical audit. He has been involved in projects in CIS countries, Mongolia, Vietnam, Cuba and Eastern Europe on a number of PGM, diamond, emerald and amber, gold, silver and copper-polymetallic mines.*

Roman Schetinsky *is currently Chief Information Officer at NBL. He holds a PhD in Economics. Roman is a member of the Association of Mining Analysts, UK, as well as a member of Minex Advisory Group, Russia.*

Anna Kryuchkova *joined NBL as a Senior Analytical Specialist in 2007. She originally trained in International Communication and Trade Affairs.*

LBMA Assaying and Refining Seminar

By Stewart Murray, Chief Executive, LBMA

The LBMA's third Assaying and Refining Seminar was held at Armourers Hall, London from 23-25 March. The week was a busy one for the more technical and physical aspects of the LBMA's work in that there was also a meeting of the Reference Materials Project Steering Committee on 23 March as well as a meeting of the LBMA Referees on the afternoon of 25 March.

The LBMA has always recognised the importance of allowing participants in the Seminar to network and so, as on previous occasions, the Seminar was initiated at a welcome cocktail reception the evening before the delegates got down to the serious business of the various technical presentations. As with the seminars held in 2005 and 2007, participation was free of charge for all Members, Associates and Good Delivery refiners. The almost 100 delegates who attended heard a range of presentations on analytical methods, reference materials, casting and weighing. The focus on casting in part reflected changes made in the LBMA's Good Delivery rules during the past year, including the phasing out of casting in closed (or gated) moulds and the concerns expressed by LBMA vaults about button type defects on the bottom surfaces of gold and silver bars. The meeting also included presentations from LBMA representatives about various aspects of the Good Delivery system, including an update on the proactive monitoring scheme.

The seminar was chaired by the LBMA Chief Executive. In his opening remarks, he highlighted one important ramification of the recessionary conditions that were currently gripping the markets. This was that industrial demand for precious metals had suffered a significant decline whereas, by contrast, investment demand had strengthened. As a result, some refiners which traditionally produced grain for industrial customers were turning to the production of large bars, which eventually found their way into the London vaults (which were, as a result, experiencing extreme levels of activity). This in turn emphasised the need for refiners to be able to cast good quality bars. For its part, the LBMA has been keen to do everything possible to assist refiners in meeting the high standards expected of them, including the publication of a visual guide to Good Delivery bars, which was the subject of a separate presentation.

Keynote Speech

The keynote speech for the conference was presented by Professor Michael Thompson of Birkbeck College, London University. Apart from his academic career, Professor Thompson has spent much time assisting industry with various chemical analytical procedures. One of his areas of specialisation has been the proficiency testing of the analyses carried out in various laboratories and he described how such systems could be used in the precious metals business (Figure 1). He noted that compared with the existing proactive monitoring system introduced by the LBMA in 2004, proficiency testing differed in a number of ways.

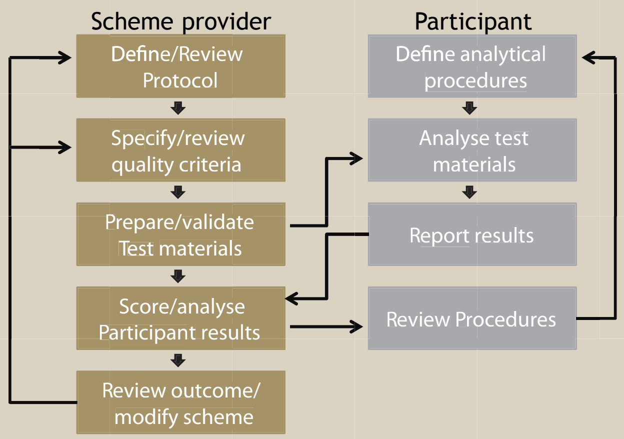
- It should be carried out at least annually, comparing the assays or analysis of a group of laboratories.
- The analysis or assay should be done on a routine basis rather than attempting to produce the most accurate possible result.
- The results of all participants should be shown in the report without identifying each of them. In fact it is important that results are submitted confidentially.
- The aim of proficiency testing is to demonstrate to participating laboratories whether they have a high or low bias compared with their peer group. Professor Thomson also described the concept of Fitness for Purpose as it applied to analytical techniques.

Good Delivery Developments

A review of recent developments affecting the Good Delivery List was then given by Peter Smith of JP Morgan Chase, who has been the Chairman of the LBMA's Physical Committee since 1992. He stressed the importance of the Good Delivery rules and their observance by refiners to the global OTC market for gold and silver, which was focussed on the loco London contract. There was never any shortage of applicants for Good Delivery accreditation. At present, there were three active applicants and an additional nine companies who had made serious enquiries about the possibility of submitting an application. He noted the tendency for the geographical breakdown of the companies on the List to move eastwards from Europe so that Japan, China and Russia had become increasingly important while there were fewer Good Delivery refiners in Europe and the Americas than in the past. Market developments in the past year highlighted the importance of the Good Delivery system, especially recently with the flood of Good Delivery bars into London and their being held there on behalf of investors. This was a reflection of the increasing preference for precious metals to be used as collateral in financial obligations as well as the growing quantity of metal held on behalf of exchange traded funds.

The next presentation was an update on the LBMA's Proactive Monitoring system by Douglas Beadle, who noted that in the first three-year cycle, several gold refiners and one silver refiner had had to undergo some form of retesting or technical training following the proactive monitoring procedures. However, in the second three-year cycle, which was now halfway through, no companies had experienced such problems. This very much validated the approach, which the LBMA adopted for ensuring that the highest possible standards of assaying were being maintained in the refining industry. The LBMA was very

Figure 1: Organisation of a proficiency testing scheme



grateful to the refiners for the cooperation which they had shown during the carrying out of the monitoring procedures and also to the supervisors and referees whose work was a vital element in the overall system.

The LBMA Chief Executive then gave a presentation on the work of the referees in the Good Delivery system. This included a brief account of the history of the LBMA since its establishment in 1987 and the early arrangements for testing applicants for Good Delivery accreditation. Then, in 2001, the LBMA decided to expand its panel of referees and to transform the application system to a double blind basis, meaning that neither the applicant nor the referee involved in testing it was aware of the identity of the other party. An important part of the process of expanding the panel of referees was to ensure that they had the highest possible standards of assaying as well as the ability to manufacture high quality, homogenous, reference samples, which are used both for testing applicants and as part of the proactive monitoring procedures.

Analytical Methods

Analytical procedures were covered by two papers at the seminar. The first was given by Pascal Cassagne of Metalor, who gave a comparative review of the methods that can be used for assaying and analysis of Good Delivery gold alloys (995 fineness and above for gold and 999 and above for silver). This covered both direct and indirect methods and focussed on issues such as the choice of corrections and the removal of bias. The paper also described the accuracy and precision obtainable from indirect versus direct methods and the fineness levels at which they were respectively applicable.

The second paper in the analytical section of the programme was from Dr. Michael Steffen of Aurubis (the former Norddeutsche Affinerie). This covered the use of x-ray fluorescence methods in the production control of silver from anode slimes to silver doré. The paper concentrated on the requirements of effective calibration needed to ensure that the method will give reliable results.

Reference Materials

The following session was devoted to reference materials, beginning with a survey of the available materials by Dirk Hofmans of Umicore. This began by differentiating those reference materials which were certified from those which were not and described what the certificate would normally include. The organisations that provide certified reference materials were described. It was notable that there was a very limited offering of reference materials for silver and gold. The paper also reviewed a survey of Good Delivery refiners, which had been carried out in advance of the seminar to find out their views on how they would use reference materials (for instance by dissolution of the materials or by direct use, e.g. in spark spectrometers).

Neil Harby of the Rand Refinery then reviewed a joint project carried out by his company, the Royal Canadian Mint and Teck Cominco Metals to produce high-purity silver reference materials. The project had provided valuable insights into how such an intercompany project could be carried out. It also described the approach to manufacture, homogeneity testing and the calculation of the final concentrations that was used.

Dr. Mike Hinds gave a presentation on the current LBMA Reference Materials Project, covering the purpose of these materials, the timeline of the project commencing in March 2007 at the last LBMA seminar, and the various stages of implementing the project (further details are given on page 18). It was obvious that the critical point in such a project lay in successfully accomplishing a rigorous homogeneity test, which involved both making the right choices about where to analyse and also selecting the most appropriate statistical treatment of the analytical data.

Dr. Hinds concluded his presentation by asking the meeting for feedback on whether a continuation of this work should be recommended to the LBMA, perhaps by looking at different alloys, e.g. with impurities not included in the current project or with the same impurities but at higher concentrations. Other possibilities included the development of reference materials for lower purity gold and silver, such as doré or carat alloys used in jewellery, silverware, etc.

A detailed account of the manufacture and testing of gold reference materials at Tanaka KK for the current LBMA project was given by Ichimitsu Itabashi and Hiroshi Sawai. The presentation showed all the stages of initial master alloy manufacture, ingot melting and casting, surface shaving, cutting and marking of the materials as well as the assaying of the samples taken for homogeneity testing.

Casting and Testing of Good Delivery Bars

The second day of the seminar began with Stewart Murray reviewing the contents of the current version of the Visual Guide to Good Delivery bars. He stressed that this was a work in progress and that, in due course, further editions would be circulated with additional content especially for silver bars. It was very difficult to depict physical defects on large bars photographically, but the LBMA felt that this was a better solution than simply using words to describe the defects which had to be avoided. Neither the LBMA vaults nor depositors could be happy if bars were being rejected because of physical defects, and the purpose of the Guide was to help companies which refine gold and silver, or which deposit bars in London, to avoid this.

David Stokes, who formerly was responsible for the production of refined gold and silver at Johnson Matthey's Royston plant, gave an overview on how to produce good quality castings in gold and silver. Motivation and involvement of the staff in quality control were key aspects as were the maintenance of moulds and the use of appropriate mould dressings.

Michele Genel of PAMP then presented a paper on the use of ultrasonic analysis for the quality control of large gold bars. This demonstrated the equipment which could be used and the types of defects which could be detected. These included layering, gas bubbles, inclusions and even the possibility of counterfeit bars. The method could be applied quickly and easily and could certainly contribute to enhancing product quality as part of the quality control system.

The final presentation moved on to a different subject, namely the London approach to weighing. It was given by Tony Dean and Terry Wooster of HSBC. It covered in detail the way that beam balances were used in the London market and how they produced the London weighing in units of 0.025 troy ounces for gold and 0.1 troy ounce for silver. The presentation included a description of the system of weighing as part of the vaults' acceptance of metal and the precautions necessary to ensure that weight measurements were always as accurate as possible. The final part of the paper reviewed the LBMA's current project to find an acceptable electronic alternative to the use of the beam balance. Because of its high accuracy, the beam balance was difficult to match, but it was hoped that electronic scales currently being examined would prove to have a high enough accuracy and reproducibility for them to be recommended as an alternative. There was no doubt that with the reduced processing time and the ability of automating the results, the London market would welcome an electronic scale which had the necessary accuracy, though it was likely that the beam balance would continue to be used as the standard in the market for some time to come.

The seminar finished with a panel discussion, which ranged over all the topics which had been covered. Copies of all the papers presented at the Seminar can be found on the LBMA website (www.lbma.org.uk) and a transcript of this discussion will also shortly be added. A further seminar will take place in 2011. Suggestions for topics to be included should be sent to the LBMA Chief Executive, stewart.murray@lbma.org.uk. ■

LBMA Masquerade Ball

2009 Annual Party

The Association's Annual Party was held at Eight Private Members' Club on Thursday 26 February. Members and Associates donned masks of all shapes and sizes to enjoy an evening of drinks and masque games. From intellectual challenges to karaoke, the Membership was tested and ultimately came up on top. Winners of the masque games all received prizes and Alan Wallis, Comdaq Metals also won the title of LBMA poker champion, after competing against all the night's winners in a final poker showdown.

Thanks to everyone who attended - plans for next year are already underway.

Cleared Forwards

A View From the Front Line

By David Gornall, Head of Precious Metals, Natixis Commodity Markets Ltd

The LBMA recently organised a seminar on OTC cleared forwards for its Members and Associates, which was attended by more than 100 market participants.

Figure 1: Current Bilateral Clearing Structure

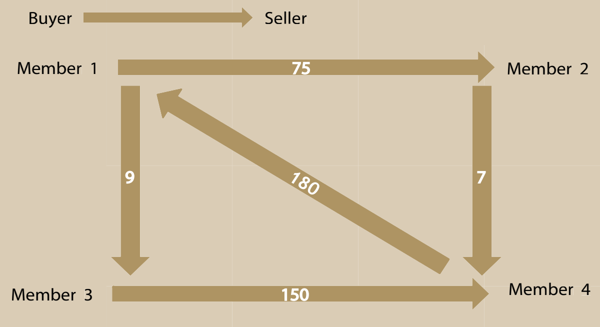
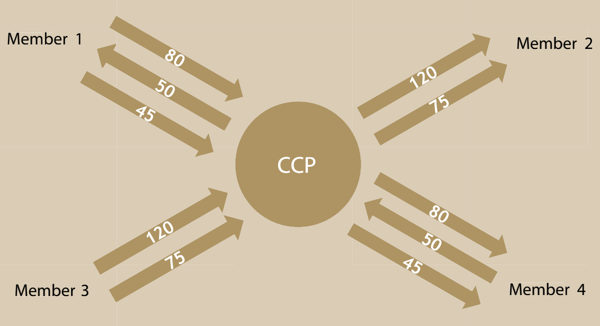


Figure 2: Possible Structure with Central Counterparty (CCP)



Some precious metals traders wondered why we were all there as, after all, the forward market has worked on a bilateral basis (figure 1) for years with few issues and none that would warrant a major change such as clearing. But nonetheless, they did all attend. To compare a major change in market practices and the reasons behind the seminar, it is worth looking back at previous events in one particular marketplace that has a similar structure to precious metals forwards (in that it also accommodates daily physically settled trades).

In October 1985, an impending default was about to paralyse the London Metal Exchange (LME), the world's most prominent arena for base metals trading and pricing. The Tin Crisis was unusual in that the defaulting party was a collective of tin producers and consumers, the International Tin Council (ITC). Backed by sovereign state cash, the ITC, prior to 1985, was seen as the least likely of any metal trader to be a potential defaulter.

In the days that preceded clearing on the LME, the 31 ring dealing members traded with each other on an OTC basis, building up risk between each other over a tenor that could be many years forward.

Unlike today's precious metals markets, credit policies barely existed between the LME members. As the crisis unfolded, some members realised that if their biggest creditor did not pay, they would then default on the other members of the exchange. I can remember one ring member showing a bid and another completely ignoring it, as he did not want to increase his risk with the former – a form of credit management I suppose. Apart from a breach of exchange rules, this began to create a disorderly market with sometimes inverted bid-offer spreads. A regulatory system to ensure good credit management policy also did not exist.

By the standards of the day, the eruption that followed was massive. £985 million was shredded when the ITC could not pay. Remarkably, most of the major members of the market managed to carry on after losing this huge sum. To solve the issue, the exchange managed a "ring-out" of all outstanding trades between all members at one fixed price under a new rule known as Rule K. The outcome would be the implementation of a clearing system that elevated the LME trading volumes to a level that would have seemed inconceivable prior to the existence of a central counterparty (CCP).

There are other parallels today where market practices have had to change, such as the credit default swaps market. Following the demise of Lehman Brothers, a ring-out was also held on its CDS, followed rapidly by regulatory approval to create a cleared solution for certain credit default swaps that could cause systemic risk.

How a Clearing House Works

I will use the London Clearing House (LCH) as an example as it is, at this time, the only metals clearing house that clears daily physically settled contracts. A clearing house or central counterparty operates by registering matched trades transacted between its members with the intention of reducing overall default risk in a cleared marketplace. It replaces bilateral credit risk between members by becoming the central counterparty to all trades (figure 2).

For this to operate, the members pay the clearing house two forms of collateral payment following a trade:

- The first is the *initial margin* payment, the level of which is set by the clearing house according to market conditions. This is basically a performance deposit against the trade (to cover the cost of closing out the position in the event of a member default), which is repaid by the clearing house when the trade is settled or closed out, and is interest bearing if covered by cash as collateral. Here, a central counterparty can have an advantage over a collection of market bilateral risks, as counterparties that trade bilaterally do not hold 5-10% initial margins with each other. This extra margin often provides a cushion at the time of liquidating the positions of a defaulting party.
- The second payment, *variation margin*, is dependent on the marked-to-market amount of the trade. The trade is revalued at the close of business each night. If it is a loss-making value, then the member can cover this with an acceptable form of collateral. If it is a profit-making value, this can be used to offset initial margin charges. This is measured against the member's portfolio has a whole.

Both margins can be covered by acceptable collateral rather than cash, however, the clearing house charges an accommodation fee for this service.

Other futures exchanges realise profits and losses on the positions each night and post the amount to the cash ledger. In this manner, you can access profit balances straight away, but you must pay losses straight away rather than at maturity of the trade.

Your Virtual Link into the London Bullion Market

Eurex Gold Derivatives

based on the London AM Goldfixing

Extending the range of multi-asset class products on a global scale, Eurex adds a new dimension to commodities trading: With USD-denominated contracts based on the largest gold spot market in the world. For OTC traders to capitalize on cyclical trends in a secure environment:

- Clear your OTC business with easy Eurex OTC entry facilities or trade in the order book
- Cash-settled futures and options (USD/100 oz)
- Use liquidity guaranteed by Market Makers
- Benefit from straight-through processing
- Mitigate your counterparty risk by using our central counterparty

There is even more to benefit from: All trading and clearing fees are waived until end of June 2009. For further information, please visit **www.eurexchange.com/commodity** or contact Dr. Michael Durica (Eurex Product Strategy), e-mail: Michael.Durica@eurexchange.com.

eurex

Neither Eurex Frankfurt AG (Eurex), nor its servants nor agents, is responsible for any errors or omissions contained in this publication which is published for information only and shall not constitute an investment advice. Any information herein is not intended for solicitation purposes but only for the use of general information. Eurex offers services directly to members of the Eurex market. Those wishing to trade in any products available on the Eurex market or to offer and sell any such products to others should consider both their legal and regulatory position in the relevant jurisdiction and the risks associated with such products before doing so. All references to London Gold Fixing prices are used with the permission of The London Gold Market Fixing Limited, which for the avoidance of doubt has no involvement with and accepts no responsibility whatsoever for the underlying product to which the Fixing prices may be referenced.

The method used to collect cash from the members is known as a Protected Payment System or PPS. This is similar to a direct debit scheme that allows the clearing house to take the cash required without having to wait for the member to make a money transfer. This speeds up the whole process and works particularly well with members that are not in the London time zone.

The process following a member's default:

- In the event of a default, the clearing house closes all positions of the defaulting member. This can be done by trading out positions in the market entirely or sufficiently to reduce or eliminate outright positional exposure, and then auctioning the entire matched position with forward cash flows amongst all of the clearing house members.
- As the trades would have been marked-to-market on the day before default, the only risk of further erosion of the defaulting member's equity comes from a negative market move of his position between the close of business before default day and the day on which the positions are liquidated.
- Should this occur, the clearing house uses the collateral covering initial margin liabilities to cover any resulting losses.
- If the negative price move exceeds the initial margin deposit, the clearing house will then use cash from the member's default fund or MDF. Only when this has been exceeded will the clearing house have to resort to using its own shareholders' funds and the default fund contributions from the other members.

Methodology – How it Could Work for Precious Metals

It is fair to say that without the guidance of the LBMA on this subject, the governance for cleared forwards will rest with the precious metals market's main participants. This is effectively what happened with the CDS market. Meetings between clearing houses and precious metals traders have been continuing for some time. Once the criteria have been established, for example, agreeing products (forwards, spot and options), value dates (daily out to two or five years), margining and delivery processes, minimum amounts and initial margins, the clearing house would provide a platform or an interface that routes principal-to-principal trades to be given up to and or novated by the clearing house. Without a trade capture facility or central order book (a forward version of EBS or something similar), novation could be done by clearing house members directly or by using the existing forward trading method, that is, via brokers.

Cash Cleared or Physically Settled?

Cash settlement could pose a problem when clearing forwards of several hundred thousand ounces of gold or several million ounces of silver. The volume of trades that could mature on the fixes would create increased turnover and prolong the fixing process, notwithstanding the major issue of fixing charges to be paid. If trades were physically settled, the existing clearing structure of unallocated deliveries could be maintained. To achieve this, the clearing house would simply need to set up clearing accounts with all of the members of the London Precious Metals Clearing Company (LPMCL). The clearing house would then be in a position to clear all longs and shorts between all of the clearers.

Pros and Cons

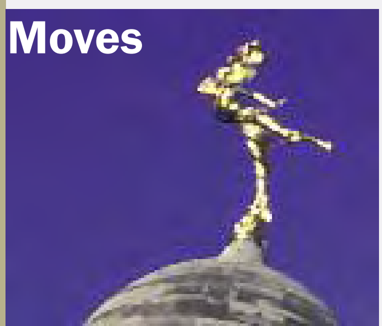
Clearing House Credit Risk

There are serious considerations for credit assessment of clearing houses, as volatility increases with price moves of standard deviation of three or more and other black swan events. However, this would seem to be a less onerous task for credit officers, who would only have to monitor a handful of clearing houses, rather than the multiple credit risks of all of their counterparties.

There are serious considerations for credit assessment of clearing houses, as volatility increases with price moves of standard deviation of three or more and other black swan events.

There have been cases of clearing house defaults. A common problem is that they are slow to react to extreme price movements and therefore increase the levels of initial margin required to avoid a meltdown. In 1987, the Hong Kong Futures Guarantee Corporation collapsed following a four-day suspension of trading, and the Kuala Lumpur Commodities Clearing House went the same way four years earlier. The Caisse de Liquidation did in fact become a liquidation case in 1974, because it did not increase initial margin rates during a period that saw sugar prices doubling. However, major exchanges today have a good track record of credit and cash monitoring, plus we have greater regulatory oversight today than in the 1970s and 1980s. Anyone who has doubts in a clearer's ability to close out defaulting positions has to look at each house's history. The unwinding and settlement of Lehman's commitments at the LCH was well drilled, quickly enforced and, most importantly, did not give rise to a loss of MDF or LCH cash.

Market Moves



Chris Fergus to **G4S International Ltd**

Chris Fergus is now Managing Director of G4S International Ltd. Chris has been with G4S for 10 years and has held a number of positions within G4SI, most recently as Deputy Managing Director and Regional Director, Americas, leading the company's entry into the Diamonds and Jewellery market.

Stephen Pender to **INTL Commodities Inc**

Stephen Pender joins INTL on 1 June. Stephen previously worked at Fortis Bank S.A/N.V., where he covered market making in both precious and base metal derivatives, and before that at JP Morgan as a precious metals spot dealer.

Gerry Schubert to **INTL Commodities Inc**

On 1 May Gerry Schubert will join INTL in London. Gerry's career in precious metals spans 30 years with various houses, most recently Fortis Bank.

Jeff Shiu to **Standard Bank**

Jeff Shiu has joined the precious metals team at Standard bank in London where he will be responsible for precious metals options business. Jeff has joined Standard Bank from Citigroup where he was running the trading desk for precious and base metals. Previously Jeff was with Dresdner where he ran precious metals options.

Costs Clearing Benefits

The price for clearing credit is known in advance, as the clearing houses set the initial margin levels to suit the current market conditions along with the clearing fees. If the price of clearing becomes too expensive relative to the benefits of mitigating credit risk, the exchanges run the risk of losing clients, and so they strive to maintain margins and clearing fees at a level that does not let this occur. The cost comparisons between OTC and exchange-cleared transactions are easy to make. Regulatory counterparty risk requirements based on the FSA's Counterparty Risk Requirement can be as high as 5%. Even short dates and transactions between regulated financial institutions bear a 2% charge for some regulated entities, whilst clearing charges are a fraction of 1%. Today, cash consumption of a bank's balance sheet on bilateral terms has to be justified more than ever before. I cannot think of a reason to justify or even want to use this amount of regulatory capital when the alternative is cheaper, more efficient and risk-reducing.

Potential Benefits for the Precious Metals Market

With a single CCP, a member would make or receive one payment and one delivery per day. This compares well to the multiple transfers that occur each day between all customers of the LPMCL and the clearers themselves. When you are on the end of a transaction that still has not been settled at the 4pm cut-off time, you often feel like a house buyer waiting for the dreaded chain to complete. The London 4pm cut-off on a cleared system would be quicker and easier for the LPMCL to manage. Imagine not having to agree ISDAs (and therefore, credit thresholds), settlement limit monitoring and collateral management systems to manage bilateral risk with your major bullion clearing counterparties.

Uniform give-up agreements allowing a customer to use their credit line to trade with a named third party would also be possible under a cleared forward. Although this exists today in the bullion market, it can only be achieved with a few prime brokers and has to be more strictly monitored as they absorb all of the risk in the absence of a central clearer.

Cross-correlation calculations that allow initial margin offset between different metals or asset classes could be achieved. The most obvious would be offset margining on the Chicago Mercantile Exchange gold futures contract against an opposing CME cleared OTC forward, saving on cash consumption if you are running an EFP position.

In London, it may well be possible to offset interest rate futures with gold forwards, creating a synthetic cleared lease rate contract. Add to this the potential reduction of margins by offsetting the delta on options against forwards and you again conserve cash. Once the clearing house has its correlation co-efficient for copper and gold, it could in theory allow offset of a percentage of initial margin that equates to the correlation.

Driving Factors Towards CCP OTC Forwards

The two main drivers of OTC precious metal clearing will be the participants in the wholesale bullion market and the regulatory authorities. Whilst all bullion banks have the choice to maintain bilateral credit facilities with one another, the choice not to do so must be available. Futures clearing is one option, but it is limited to New York delivery and delivery days. The only real option would be to adopt a similar model to the LME's clearing as it also has a delivery day for each London working day of the year. The shareholders of the major financial institutions feel the growing cost of maintaining bilateral credit terms are likely to encourage the use of cleared OTC forwards if they are available.

Regulators have discovered that oversight of individual regulated entities does not always ensure a stable financial climate. What would be preferable, and possibly non-intrusive, would be to force all OTC derivatives to be cleared. We have seen already how the CDS market plans to become cleared due to regulatory concerns around systemic risk. This market, previously unregulated, will now be monitored and regulated by one single US regulator, along with all other OTC derivatives.

On Thursday 26 March, Tim Geithner, United States Secretary of the Treasury, proposed several regulatory reforms in reaction to the current financial crisis. One of the proposals was to force all vanilla OTC derivatives to use a CCP (see box at right).

In the US, at least, it looks like forward clearing has arrived. ■

US Treasury Proposal for OTC Derivatives

"Clearing All Contracts Through Designated Central Counterparties

We will force all standardized OTC derivative contracts to be cleared through appropriately designed central counterparties (CCPs) and encourage greater use of exchange traded instruments. These CCPs will be subject to comprehensive settlement systems supervision and oversight, consistent with the authority outlined above.

Requiring Non-Standardized Derivatives to Be Subject to Robust Standards: We will require that all non-standardized derivatives contracts report to trade repositories and be subject to robust standards for documentation and confirmation of trades; netting; collateral and margin practices; and close-out practices.

Making Aggregate Data on Trading Volumes and Positions Available: Central counterparties and trade repositories will be required to make aggregate data on trading volumes and positions available to the public and make individual counterparty trade and position data available on a confidential basis to appropriate federal regulators."

David Gornall *started his career in 1979 trading silver at Lonconex Limited, part of the Primary Industries/ Golodetz commodity trading group. After a spell at Morgan Guaranty Trust of New York, he moved to Sogemin, trading in the LME ring and heading the bullion and FX desk. In 1992 he joined NM Rothschild to start their LME base metals operation, before returning to Sogemin – now Natixis - where he is Head of Precious Metals. David has been a Member of the LBMA Management Committee since 2005 and the Management Committee representative on the Physical Committee since 2008.*

LBMA Reference Materials Update

By Stewart Murray, Chief Executive, LBMA

The origins of the project go back to the Assaying and Refining Seminar held in London in March 2007. There it was agreed that the LBMA should evaluate the possible demand for solid samples reference materials for use in spectrographic analysis.

After carrying out a survey of all Good Delivery List refiners, it was clear that there was sufficient demand to justify such a project, and a Steering Committee was established under the Chairmanship of Dr. Mike Hinds of the Royal Canadian Mint to guide the project to completion. During the remainder of 2007, the foundations of the project were laid. This included establishing the size and composition of the materials, the companies who would be involved in manufacturing them and a larger group of companies which would be involved in analysing the materials once they had been manufactured. Most importantly, the Steering Committee also had to set the price of the materials that would cover the costs of manufacture based on the advance orders which were received.

In early 2008, the Steering Committee appointed the manufacturers of the gold and silver reference materials (Tanaka of Japan and Krastsvetmet of Russia for gold and silver respectively). Inspection visits to the facilities of the two manufacturers were carried out by Dr. Hinds and the LBMA Chief Executive in March 2008. Discussions during these visits allowed the manufacturing parameters to be agreed. Soon after this, the two companies began their exploratory research into the best way of meeting the considerable challenge of producing completely homogeneous large ingots containing approximately 20 impurity elements within the target ranges in each ingot (see table). In passing, it might be remarked that producing homogeneous ingots in the size sufficient to meet the projected demand for reference materials is by no means easy. This is especially because a number of the elements included are quite volatile and, as the melting has to be carried out in a vacuum furnace, these tend to be lost during the process of melting and equilibration before casting. In addition, when a large ingot of metal is cast, there is a natural tendency for some elements to segregate during the solidification process. This can be minimised by rapid cooling in the mould. To meet these challenges, each manufacturer developed its own strategy, employing the best available technology and the initial manufacture of master alloys containing various combinations of the desired impurities, which could then be combined together in the final melting stage.

The master alloys used in manufacturing the gold reference materials at Tanaka KK.

Rather than repeating in full here how this was achieved, details of the procedures used at Tanaka can be found on the LBMA website (www.lbma.org.uk/events/assay2009) in the form of the presentation which was made by members of the Tanaka team at the recent LBMA Assaying and Refining Seminar. By the end of 2008, both the Tanaka ingots had been produced and rolled to the final thickness and divided into units corresponding to the final product size (20x20x6mm, weighing 50 grams each). A semi-random selection of these units was then analysed both at the surface and at depth for each of the 22 impurity elements. The same units were sent to the Rand Refinery, which carried out the same analysis. These results were then submitted to the Chairman of the Steering Committee, who subjected them to a homogeneity check using an ANOVA statistical package. In early February 2009, Dr. Hinds was able to report that the two ingots were judged to be completely homogeneous in respect of all the impurities. This in effect meant that the gold materials are usable and that in due course they will be shipped to those companies which have placed orders for them. The penultimate phase of

Target Concentrations (ppm)

Gold Reference Materials

Element	Au-RM1	Au-RM2
Ag	20±10	100±50
Al	10±5	30±15
As	12±6	40±20
Bi	30±15	10±5
Ca	10±5	30±15
Cr	10±5	30±15
Cu	10±5	30±15
Fe	10±5	30±15
Mg	30±15	10±5
Mn	10±5	30±15
Ni	10±5	30±15
Pb	10±5	30±15
Pd	10±5	30±15
Pt	10±5	30±15
Rh	10±5	30±15
Sb	30±15	10±5
Se	12±6	40±20
Si	10±5	30±15
Sn	10±5	30±15
Te	40±20	12±6
Ti	10±5	30±15
Zn	10±5	30±15

For gold, there will be a difference of at least 10 ppm between the concentrations in RM1 and RM2.

Silver Reference Materials

Element	Ag-RM1	Ag-RM2
Al	5-10	20-40
As	20-40	5-10
Au	5-10	20-40
Bi	10	50
Cd	5-10	20-40
Cr	5-10	20-40
Cu	20	100
Fe	5-10	20-40
Mg	20-40	5-10
Mn	5-10	20-40
Ni	5-10	20-40
Pb	50	10
Pd	5-10	20-40
Pt	5-10	20-40
Rh	5-10	20-40
Sb	5-10	20-40
Se	20-40	5-10
Si	5-10	20-40
Sn	20-40	5-10
Te	5-10	20-40
Zn	20-40	5-10

the project is now well advanced in respect of the gold materials. The most important aspect of this has been the production of shavings for distribution to a total of 10 laboratories around the world, each of which will determine the content of the 22 impurities independently and report these findings to the Executive. The Executive will tabulate the analytical results, with each participating laboratory being shown only as a code number, and then circulate these to the Steering Committee, which will decide whether any of the results should be excluded as outliers and thus determine the reference value for each contained element. These reference values will be shown in the certification for the materials.

The final phase will consist of invoicing those companies which have placed orders and shipping the materials to them. Invoices for the manufacturing cost element of the overall price will be issued shortly to those companies which placed orders. Once the certification stage has been completed, companies will be informed about the variable element of the price (this being dependent on the price of gold when the material is available for shipment, the weight of each individual sample and the shipping cost). Purchasers will be required to pay for all costs before the materials are shipped.

Following despatch of the materials to meet the orders already received, there will be a small number of materials left, which can be purchased from the LBMA. The price of the reference materials is shown in the box to the right.

Shavings – For ICP Users

The original purpose of the solid sample reference materials was for use with machines such as spark spectrometers. Companies which use wet ICP methods of analysis would have to produce shavings from the materials in order for them to be used in this equipment. Responding to requests from such users, the LBMA and Tanaka have agreed to produce a certain quantity of the reference materials in the form of shavings. The method of shipping these shavings will be in tamper proof plastic containers each containing 50 grams of the materials. The materials sold in the form of shavings will be sold at a premium of US$600 per set, reflecting the cost of producing the shavings.

Fixed part of price per set of two blocks

LBMA Good Delivery Refiners, Members and Associates:	US$3,750
Other purchasers:	US$4,500

The Silver Project

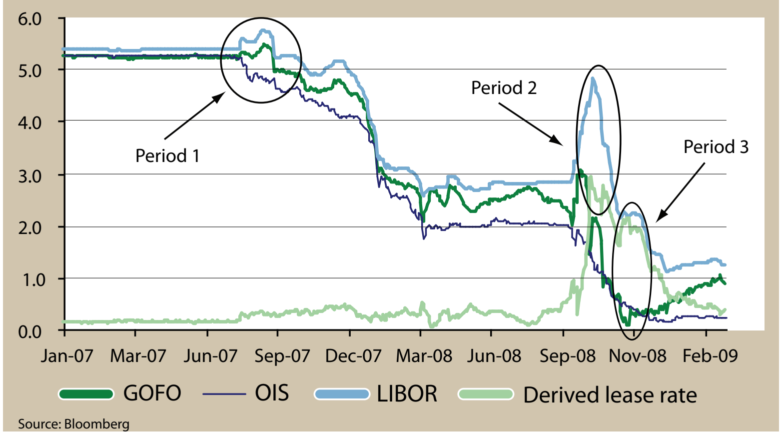
Progress at Krastsvetmet has gone along similar lines to that at Tanaka. However, the initial ingot produced turned out to be not totally homogeneous in respect of all impurity elements. This is probably due to the fact that because of silver's lower density and the need to produce a greater volume of metal, the cooling rate during the solidification of the ingot was insufficient to prevent the segregation of some impurities. Krastsvetmet will therefore recast the ingot using enhanced cooling to minimise and hopefully avoid detectable segregation. A further update on the progress with the silver materials will be included in the next edition of the *Alchemist*. ■

Gold – A New Lease of Life?

By David Barclay and Christophe Duval-Kieffer, Analysts, Standard Chartered Bank

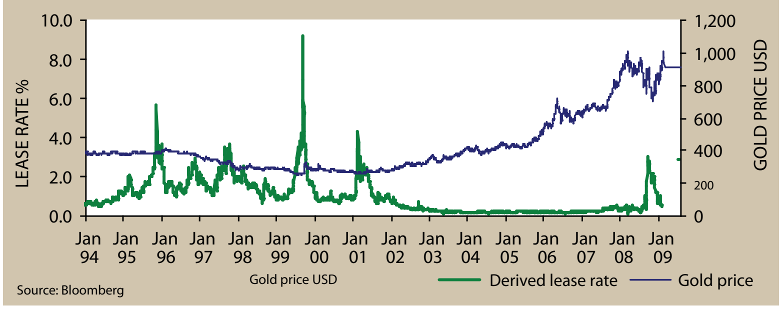
Last year's money market disturbances drove lease rates higher, in contrast to previous spikes, which tended to stem from more idiosyncratic factors. Lease rates have since recovered from last year's tumult, but are still relatively high. We do not believe in a repeat of the extreme conditions in September and October 2008, therefore in our view a repeat of such high lease rates is unlikely.

Chart 1 GOFO, OIS, LIBOR and derived lease rates (all 3-month)



Source: Bloomberg

Chart 2 LBMA 3m derived lease rates and gold prices



Source: Bloomberg

Chart 1 illustrates that whilst the spike in lease rates appears as a singular event, underlying money market disturbances had been evident since the onset of the crisis in August 2007. We take three distinct periods and examine the dynamics driving LIBOR, GOFO and OIS rates in each case.

Lease Rates and Financial Market Distress

The acute distress in the global financial system last September and October coincided with lease rates at levels not seen since 2003, but there have been plenty of previous occasions where lease rates have spiked to even higher levels. Unlike last year, these tended to occur for idiosyncratic reasons within the gold lending market and not due to broader market stresses; chart 3 illustrates this by showing that the VIX – a measure of general financial market volatility – is usually not correlated with moves higher in lease rates.

Instead, central banks withdrawing lending in preparation for outright sales (Netherlands and Belgium were active sellers in the mid to late 1990s), coupled with new hedging programmes by miners led to the temporary spikes in lending. The outsized jump in lease rates in 1999 was a result of the Washington Agreement on Gold (WAG) announcement, which led to fears of diminished liquidity as central banks communicated their intentions to sell holdings of gold and limit further additions of new lending.

Unlike the equity market, where high borrowing rates reflect a stock being "in play", indicating speculative demand to sell a security short, high lease rates in the gold market do not tend to be a reliable guide for indicating price pressures in either direction, as chart 2 illustrates. There seems to be no statistical linkage between the price of gold and the lease rate over the long run.

Intersecting LIBOR, OIS and GOFO Rates: Periods 1 and 2

Since lease rates are a function of LIBOR and GOFO rates, we examine both of these in relation to a common benchmark, the overnight indexed swap (OIS) rate. The OIS rate is a fixed versus floating interest rate swap, with the floating rate indexed to the overnight rate, which in the case of the US, is the Fed Funds Effective Rate (FFER). The swap rate reflects market expectations about the average level of overnight rates over a three-month time period.

Since the beginning of the crisis, GOFO rates have been more highly correlated with LIBOR rates than with any other funding rate. Changes in the OIS rate are, however, uncorrelated with GOFO and LIBOR during this time period.

Table 1: correlation between the change in GOFO, OIS, Libor and Repo 3-month rates, 02/11/2007-now

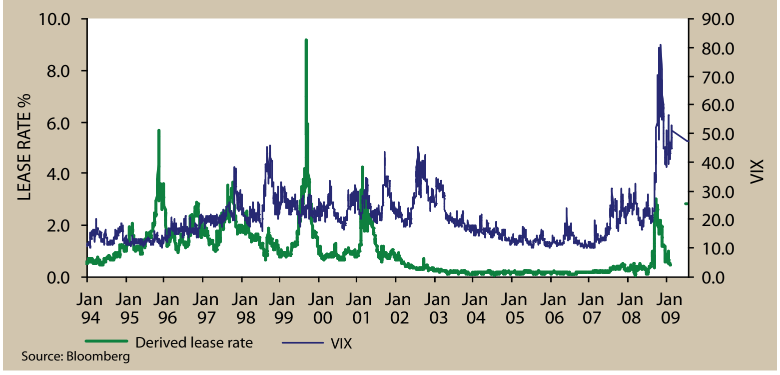
	ΔGOFO	ΔOIS	ΔLIBOR	ΔREPO
ΔGOFO	1.00			
ΔOIS	0.07	1.00		
ΔLIBOR	0.45	0.09	1.00	
ΔREPO	0.05	0.31	0.11	1.00

Source: Bloomberg, BBA

The various rates are marked by differences in counterparty risk (with the highest first):

- LIBOR is the rate at which banks can borrow from one another with no pledging of collateral and an actual exchange of notional; counterparties are exposed to the full size of the transaction.
- The GOFO rate involves an actual exchange of cash for gold, leaving the counterparties exposed to the difference in value of the underlying notionals.
- The OIS rate is a swap transaction where the counterparty risk is limited to the change

Chart 3 LBMA 3m derived lease rates and gold prices



in the marked-to-market value of the swap and not the principal transacted.

So the counterparty risk element is much smaller on an OIS swap than on an unsecured deposit reflected in LIBOR rates, so when counterparty risk increases, the spread between the two tends to widen. Historically, LIBOR tends to track the OIS rate very closely, as seen in the first part of chart 1.

At the onset of the current crisis in early August 2007 (marked period 1 in chart 1), the LIBOR-OIS spread moved wider, whereas the GOFO-OIS spread reacted to a lesser degree, pushing lease rates from a range of 5-15bps (basis points) up to 20-30bps. Then, in September 2008, LIBOR-OIS blew even higher (period 2), and although mirroring this move initially, GOFO-OIS spreads then moved lower, coinciding with the peak in 3-month lease rates at 2.93 on 8 October 2008. This period of high lease rates was characterised by the explosive move higher in LIBOR.

This sharp move higher in the LIBOR-OIS spread reflected several underlying parameters, the two most important being the short-term credit of the borrowing bank and a pure liquidity risk premium. The latter occurred at the start of the current crisis when banks wanted to keep their cash to meet potential liquidity back-stop obligations on some structured investment vehicles (SIVs). LIBOR became the focus of intense scrutiny last year and suggestions were abound that banks were understating their true borrowing costs in an attempt to cloak their desperation for funds. There were even claims that banks were actively manipulating LIBOR rates in a concerted fashion.

While the occurrence of such manipulation remains to be evidenced,[1] it is likely however that the spread between GOFO and LIBOR embedded unusual factors, such as the creditworthiness of LIBOR contributors and cash hoarding. A separate empirical analysis, taking the average of the five-year credit default swap (CDS) spread of LIBOR-contributing banks as an explanatory variable for the LIBOR-OIS spread, suggests that pure creditworthiness was probably less instrumental in determining the LIBOR risk premium than cash hoarding, but that it accounts for a significant share of the widening spread nonetheless. As banks suffered from deteriorating creditworthiness to varying degrees, the rate at which they could obtain US dollar funding would differ, having a knock-on effect on their respective lease rates. This is because lease rates are partly a function of LIBOR, so any spectrum in contributory LIBOR rates from the BBA's panel will also be manifest in lease rates.

Could the differing compositions between the panels of GOFO contributors and LIBOR contributors be a source for varied pressures upon the respective rates? The GOFO panel has fewer contributors and has a lower proportion of US versus non-US banks at 1:2, whereas the LIBOR panel's ratio is 1:3 (see Table 2). It is worth recalling that GOFO and LIBOR rates cover different credit spectrums and, in general, credit spreads on US banks (Citibank, BoA, JP Morgan Chase, etc.) have widened more than credit spreads on European banks (UBS, Barclays, HSBC, etc.).

However, by contrast, with the significant explanatory power of CDS spreads for the LIBOR-OIS spread, the linkage between the GOFO-OIS premium and CDS spreads has limited statistical significance; it is especially the case if the price of gold is added as an exogenous variable for the GOFO-OIS spread. This probably reflects gold prices and CDS spreads exhibiting some common component indicative of risk aversion.

Overall, there is no strong evidence that counterparty risk is a prominent factor determining GOFO-OIS spreads, in contrast to the detected impact on LIBOR-OIS spreads. Therefore, the rise in credit concerns was a factor in opening up the gap between LIBOR and GOFO and to higher lease rates.

Table 2: Contributing Banks to GOFO and USD LIBOR

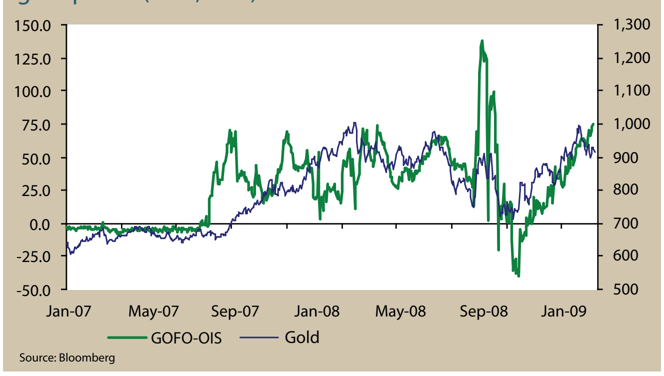
GOFO	USD LIBOR
Bank of Nova Scotia-ScotiaMocatta	Bank of America
Barclays Bank	Bank of Tokyo-Mitsubishi
Deutsche Bank	Barclays Bank
HSBC	Citibank
Goldman Sachs	Credit Suisse
JPMorgan Chase	Deutsche Bank
Royal Bank of Canada	HSBC
Société Générale	JPMorgan Chase
UBS	Lloyds TSB
	Rabobank
	Royal Bank of Canada
	Norinchukin Bank
	Société Générale
	RBS
	UBS
Source: LBMA/BBA	WestLB

GOFO-OIS Spreads Appear Directional with Gold Prices

Indeed, factors other than the credit of contributing banks might have had an impact on GOFO rates. As we have underlined, GOFO rates are the interest rates associated with the lending/ borrowing of cash against gold. In a way, it is similar – although not exactly – to General Collateral Repurchase Agreements (GC Repo) where cash is borrowed against the posting of some collateral. Such repos sometimes depend on the value and demand of the underlying collateral. Collateral that is highly in demand will typically be associated with low interest rates on the cash leg. Also, repos offer protection for the lender as collateral is posted at a discount ("haircut"); were the cash borrower to fail, the lender could dispose of the collateral with a good chance to be in the money.

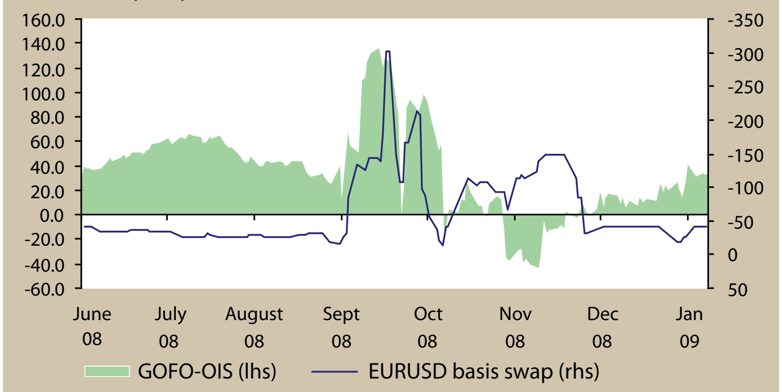
By contrast with repos, however, gold versus cash swaps do not involve the posting of

Chart 4 3m GOFO-OIS spread (bp, LHS) and gold prices (USD, RHS)



[1] In a LIBOR consultation paper, the BBA found that respondents from a wide cross-section of the market considered LIBOR "a fundamentally robust and accurate benchmark". However, it was noted that "many respondents referred to the poor market conditions as having an adverse effect on all benchmarks aggravated by the global shortage of US Dollars."

Chart 5 3m GOFO-OIS spread (LHS) and EURUSD basis swap (bp, RHS)



Source: Bloomberg

collateral, meaning that the counterparties to the swap receive full ownership of the gold/cash during the swap. Because the swap is cash against a volume of gold, the price of gold is not a factor in the swap per se: a volume of gold is borrowed, the same volume of gold is returned.

Yet the lender of gold might not recover its gold if the counterparty fails, and will incur the full marked-to-market risk of gold if it has to use the cash to repurchase its gold – there is no "haircut". As a result, counterparties entering a gold-for-cash swap will be exposed to the price of gold and also perhaps to the volatility – either realised or implied – of gold prices in the event of a default. It is therefore not surprising if gold prices tend to influence the GOFO-OIS spread, which as we showed, exhibits some directionality in gold prices.

This risk has a cost, which should be associated with a positive basis between GOFO rates and REPO rates or OIS rates. Higher gold prices might be associated with higher GOFO-OIS spreads because: (1) higher gold prices illustrate some cautious stance on risky assets and therefore some caution on any form of unsecured lending; and (2) the increase in gold prices has been so prompt and sustained that any counterparty lending gold to a failing counterparty would have incurred a substantial cost to buy it back had it been left with cash.

An important feature of the market for borrowed gold is the role of the central banks, which are primary lenders. Central banks' gold is lent to intermediaries, which in turn can lend it on. Intermediaries receiving gold deposits from central banks will provide high-quality collateral in return – so that the availability of collateral might play a role at the early stages of gold "sourcing". Central banks lend gold to earn some return on their holdings, but also enter gold swaps with other monetary authorities in order to have access to alternative reserve assets. GOFO rates might therefore be affected by cross-border funding issues.

The Spike in Lease Rates: Period 2

GOFO-OIS spreads were host to some extreme moves in the second half of 2008, the first of which occurred following the Lehman Brothers bankruptcy in mid September. The spread reached a high of 140 bps at the end of September, but then began to ease, whereas LIBOR-OIS did not peak until 10 October. The period between these two dates saw lease rates at their 2008 highs.

The unusually wide GOFO-OIS spread throughout September and October was contemporaneous with a sharp rally in gold prices, although this cannot be seen as the cause of the wider GOFO-OIS spread. At that time, funding markets were highly dysfunctional, with high LIBOR-OIS spreads as well, although the pattern of the LIBOR-OIS spread cannot be exactly matched with that of the GOFO-OIS spread. Above all, cross-border interbank lending froze, inducing a sequence of responses.

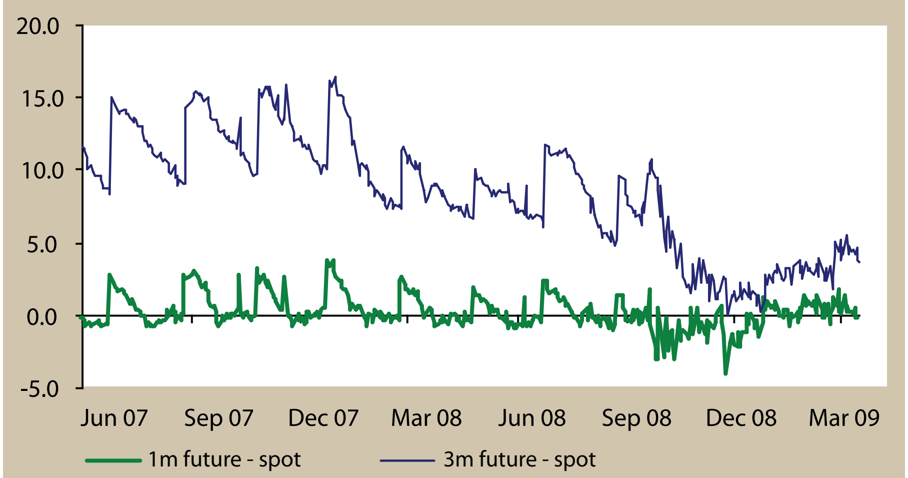
On 24 September, the FOMC established new swap lines with the Reserve Bank of Australia and the Sveriges Riksbank for up to US$10 billion each and with the Danmarks Nationalbank and the Norges Bank for up to US$5 billion each. On 26 September, it increased existing swap lines with the ECB by US$10 billion and the Swiss National Bank by US$3 billion. On 29 September, it authorised a US$330 billion expansion of swap lines with Bank of Canada, Bank of England, Bank of Japan, Danmarks Nationalbank, ECB, Norges Bank, Reserve Bank of Australia, Sveriges Riksbank, and Swiss National Bank. Swap lines outstanding then totalled US$620 billion. On 13 October, it increased existing swap lines with the foreign central banks again.

In spite of central banks' actions, it is fair to assume that during this three-week period, dollar funding for non-dollar banks was difficult to get; basis swaps (LIBOR versus EURIBOR currency swaps) became increasingly expensive, and it is likely that, at that time, using gold to obtain US dollars became attractive. As a result, it appeared that market participants were ready to pay much to borrow US dollars using gold as the need for dollar funding was pressing and no other sources of funding were available. As this need diminished, GOFO-OIS began to move lower, leading to the final leg higher in lease rates as LIBOR peaked some days later.

Backwardation: Period 3

Lease rates partly recovered to 160 bps by 7 November, a month or so after the 290 bps high, only to rise sharply again above 200bps (period 3) during the second half of the month, this time driven solely by action in GOFO, since LIBOR was relatively steady at this time. 3-month GOFO rates fell as low as 5bps (1-month GOFO rates even turned negative) and GOFO-OIS spreads reached -40bps. During the resultant backwardation, market participants were paid to borrow money using gold – which is the opposite of the usual regime, when creditors are remunerated. The extent to which normal trading parameters were distorted is illustrated in chart 5 above, which shows the premium of 1-month and 3-month futures

Chart 6 Near dated COMEX futures minus spot prices



Source: Bloomberg

over spot prices. The two-month cycle observed up until September 2008 reflects the roll between the bi-monthly active contracts, of which there are six each year, yet this completely broke down.

Importantly, GOFO rates were lower than OIS rates during this period; OIS rates were already depressed by expectations of future cuts in the Federal Reserve target rate, yet GOFO rates were even more depressed. It came as a sharp contrast with the positive spread that had prevailed since the beginning of the crisis. The analogy with repos helps to explain how this change happened; in a repo, collateral that is highly in demand will typically be associated with low interest rates on the cash leg.

During this period of low GOFO rates, it appears investors were happy to lend cash at negative rates in order to benefit from the safety of holding gold; in other words, gold as quasi-collateral was so much in demand that investors were ready to pay to hold it. Such a financial oddity – the "safety premium" – also took place on short-term US bills, which on 4 December 2008 paid negative interest rates. This rush to safety pressured GOFO lower and resulted in a mini up-tick in lease rates once more, although to levels below the October high.

Lease Rate Volatility Should Be Confined to the Past

Financial market convulsions commencing in August 2007 radically altered the normal relationships between LIBOR, GOFO and OIS, which culminating in the epicentre of the crisis in September and October 2008, resulted in lease rates spiking to levels not seen since 2002. Since then, notwithstanding the numerous policy-induced waves of volatility and occasional bout of extreme risk-aversion, lease rates have trended back lower and are now at pre-September 2008 levels.

We believe lease rates will first stay at these levels and then gradually ease lower once more:

- Elevated concerns regarding the creditworthiness of counterparts in the interbank lending market had varying impacts on LIBOR and GOFO; we believe a repeat of these conditions is unlikely in light of the multitude of policy measures enacted to enhance liquidity provision.
- The major catalyst for these interbank concerns was the Lehman Brothers bankruptcy and it appears unlikely for now that the US authorities will allow another systemically important institution to fail.
- Negative 1-month GOFO rates and the resultant backwardation, related to the similarly odd "safety premium" that befell the bond markets, is a rare event. The positive relationship between GOFO-OIS spreads and gold prices exhibited since 2001 should buoy GOFO rates in light of our outlook for higher gold prices over the longer term.

In the absence of any further large credit events in the banking sector, we think lease rates will trend lower as LIBOR slowly normalises. ■

Christophe Duval-Kieffer *received economics and finance degrees from HEC and IEP Paris in France as well as from Pompeu Fabra University in Spain.*

His expertise includes the use of modelling tools and statistical back testing to create fixed-income, FX and commodity trading strategies.

David Barclay *received a BSc in Business Administration from the University of Bath and joined Lehman Brothers as part of the capital markets graduate programme. He then moved into metals research, covering uranium and steel, before joining Standard Chartered as a commodities strategist.*

Obituary JACK SPALL

Honour, Integrity, Respect and Liquidity

By Alan Baker

Jack Spall started his career in the City in 1947 at Wallace Brothers, becoming a soft commodities broker, primarily in wool, before moving to Merrill Lynch in 1961.

His introduction to the bullion market came in 1967 with the termination of sales of silver by the US Treasury at $1.29 per ounce. It was then that he switched from broking in wool to silver, at the birth of the era of speculative opportunities in bullion. This brought him in contact with London bullion houses by providing the link to arbitrage against the fledgling silver contract on COMEX, followed by an invitation to join Sharps Pixley in 1970, where he remained until he retired in 1988.

Jack's early exposure to silver arbitrage left him well placed to steer Sharps, taking advantage of opportunities on the Winnipeg Commodities Exchange when it opened its gold contract in 1972, Hong Kong when import and trading restrictions were lifted in 1974 and the opening of the COMEX gold contract in 1975. The move also introduced him to the institution and camaraderie that is the London Bullion Market, something for which his natural conviviality was eminently suited.

As a boss he was "hard but fair!" Not one to suffer fools gladly, his "corrective interviews" with erring dealers who had raised his ire became legend, although he did, rumour has it, have a softer underside. He was also one to let the dealers have their heads and make their own mistakes, but not too often! His greatest obsession was undoubtedly liquidity: "Never be in a position where you can't satisfy your creditors and so put the firm at risk." His approach has perhaps gone out of vogue, to the detriment of all of us today!

In his career Jack dealt on the basis of honour, integrity and respect. Happy to work on the basis of "my word is my bond" and of a set of rules for the market that could be contained on one piece of paper. The necessity of the introduction of vast tomes of regulations with the passing of the Financial Services Act in 1986 left him happy to leave the market when he did, for it was changing more than he cared for. He would also not have been one for the electronic trading of today, for he came from a time when daily personal contact was the norm and he revelled in it.

Jack leaves his wife Kay, his children Jonathan and Claire and four grandchildren. It has been a source of great pride for Jack that Jonathan followed in his father's footsteps, helping to keep him in touch with a part of his life that had become so important to him. ■

LBMA News

By Stewart Murray, Chief Executive, LBMA

COMMITTEES

Management

The Management Committee met in February and April. The latter meeting was notable as the last one to be attended by Jeremy Charles, who has announced that he will step down as LBMA Chairman and a member of the Committee at the AGM in June. Watch out for his account of three years in the hot seat in the next edition of the *Alchemist*.

As usual, the Committee's work consists mostly of reviewing and taking decisions on the recommendations of the Sub-Committees. Noting the discussions at the Assaying and Refining Seminar about a possible proficiency testing scheme for the Good Delivery refiners, it was agreed that the Executive should explore the possibility of setting up such a scheme. The idea would be to allow (but not require) refiners to test their fire assaying capability for gold on an annual basis.

Based on a recommendation from the Public Affairs Committee, it was agreed to support the athletic efforts of three bullion market participants to raise funds for charities (see page 17 for details).

The Committee reviewed the possible venues for the 2010 conference and after looking at various alternatives decided that the previous decision to hold the conference in Berlin (at a date to be announced) should be maintained.

Physical

The Physical Committee met in February and April. This has been a busy period for the physical aspect of the LBMA's work with the Assaying and Refining Seminar in late March (see article on page 11) and the Reference Materials Project approaching the final phase (see page 18).

The project to evaluate a new technology electronic scale for the weighing of large gold bars also continues. Two versions of the new scale are now available for comparative weighing tests in the vaults of LBMA members and it is hoped that the promising indications from an initial examination of the scales will lead to them being accepted as alternatives to the beam balance in due course. However considerable further testing will be necessary which, given the high level of activity in the vaults at present, means that it will be several months before the next phase of the project can be completed. The Physical Committee is also responsible for overseeing the issue of VAT within the bullion market and it noted with satisfaction that a recent ad hoc working group of HM Revenue and Customs had decided that unallocated supplies (i.e. sales of precious metals to metal account) would be excluded from the requirement to declare these on European sales list reports.

Public Affairs

The Public Affairs Committee met in February and March. With just over six months to go to the Edinburgh conference, the Committee's work is now intensively focused on the programme as well as the extra-mural events associated with the Conference. Suggestions for topics and speakers have come from a new informal panel of advisors that has been set up for this purpose but it is not too late for readers to make their own suggestions. Any ideas should be sent to ruth.crowell@lbma.org.uk.

The Committee is also working on ways of distributing the *Alchemist* more cost effectively by email. At present a pdf version of the *Alchemist* is sent by email to those who have requested this but in future it is hoped to have a fully electronic version with links to other content.

The PAC also decided that the photo gallery from both the Annual Party and the 2008 Conference in Kyoto should be made available to Members, Associates and those who attended. In order to view the photo galleries, it is necessary to obtain a link from the Executive (ruth.crowell@lbma.org.uk).

Membership

The Membership Committee met in February and March. As well as reviewing a number of applications for Membership and Associateship, the Committee provided guidance to the Management Committee on the best way of treating applications for Affiliate Membership. Affiliate Membership is not a separate form of Membership as per the Constitution. Instead, it is a form of ordinary Membership which applies when more than two companies from the same group wish to be members. The Management Committee has permitted companies to become Affiliate members at a reduced level of annual subscription but requiring that they waive certain rights, including most importantly the right to vote and also the right to sponsor applications which are also sponsored by the related company which is already a Member.

Finance

The Finance Committee met in April to review the draft audited accounts for the year ended 31 December, 2008. This was a challenging year financially for the LBMA and Richard England, the Chairman of the Committee addresses the issues related to the accounts in the Editorial on page 26.

LBMA Annual General Meeting - 5:30pm on 11 June

Ironmongers' Hall, London

The twenty-first AGM will be held at Ironmongers' Hall at 5:30pm on 11 June. The Hall is located in the Barbican and its entrance is on Aldersgate near the junction with London Wall. All Members and Associates are cordially invited to attend. This will be a an ideal opportunity to find out about the multifarious activities of the LBMA carried out in the past year as well as to meet other Members during the drinks reception following the meeting.

The formal papers for the meeting (including nomination forms for the Management Committee) will be circulated on 1 May to the LBMA contact in each Member and Associate company. All members of the Committee stand down at the AGM but may be re-elected. This year the agenda will include a motion proposed by the Management Committee to change clause 60(g) of the LBMA's Articles to allow members of the Committee to serve on it continuously for up to 10 years. At present, this article states that members can serve continuously for up to five years unless they are the Chairman in which case the period can be extended to seven years.

Annual Party

The LBMA's annual party for staff at Members and Associates was held at the Eight Club on 26 February. In spite of the fact that the event was not free-of-charge this year, almost 200 attended, representing all parts of the bullion market in London and including a number of visitors from overseas. The theme was a Venetian Masquerade (which traditionally heralded the end of winter and the arrival of spring). See a selection of the photos taken on page 13. A full gallery of photographs can be viewed (by Members and Associates only) on a special website. Please ask ruth.crowell@lbma.org.uk for the link to the gallery.

LBMA Staffing

The Executive is delighted to announce a new member of staff: Ms Rionne Preuveneers joined the Executive team as Public Relations and Media Assistant on 27 April. Rionne (pronounced as in Leon) will be the first point of contact for those phoning the Executive and her responsibilities include the *Alchemist*, the website, general membership admin as well as press contacts.

Assaying and Refining Seminar

Almost 100 representatives of Members, Associates and Good Delivery refiners attended the third in the series of Assaying seminars organised by the LBMA from 23–25 March. A full report can be found on page 11 and all the papers presented are already on the website; a transcript of the Q&A sessions will be added to the website shortly.

REACH

A further seminar will be held in London in May to allow representatives of those Members which have pre-registered with the European Chemicals Agency to meet representatives of the EPMF Precious Metals Consortium. This should help the Members to decide whether joining the Consortium would be the best way of obtaining the data dossier necessary for final registration. ■

DIARY OF EVENTS

MAY

7
FT Gold Investment Summit
London
T: +44 20 7775 6653
F: +44 20 7775 6413
www.ftglobalevents.com
finance.event@ft.com

JUNE

2-4
World Mining Investment Congress
London
T: +44 207 827 4171
F: +44 207 242 1508
www.terrapinn.com
sarah.pegden@terrapinn.com

11
LBMA Annual General Meeting
London
T: +44 20 7796 3067
F: +44 20 7796 2112
www.lbma.org.uk
mail@lbma.org.uk

13-16
IPMI 33rd Annual Conference
Orlando, Florida
T: +1 850 476 1156
F: +1 850 476 1548
www.ipmi.org
mail@impi.org

2008 – An Important Year for the LBMA

Editorial Comment by Richard England, Chairman, LBMA Finance Committee

Over the past decade the LBMA's income and expenditure have both grown steadily. On the income side, the increase reflects a number of factors: Membership has grown steadily, particularly in the Associate category; the income from the conference reflects the success of the event in attracting large numbers of delegates each year (2008 having set a new record for attendance); and a significant part of the Association's income is now related to the Good Delivery List. The growth in Good Delivery income is partly because the Executive took over the main responsibility for processing applications for Good Delivery accreditation from the London vaults in 2004 and partly because of the introduction of proactive monitoring in the same year.

On the expenditure side, costs have generally lagged the rise of income in most years, so that a modest surplus was carried forward, which allowed the LBMA to build up a reserve in case of unexpected financial challenges. The area where such a challenge was thought most likely was the annual conference.

More recently, it was felt that the reserve had become, if anything, too large and that it would be preferable to budget for a breakeven position or a deficit. To this end, the LBMA has organised some of its annual events to be free of charge for participants (including last year's annual social function for Members).

The annual accounts will be presented at the AGM on 11 June and I hope that as many Members as possible will be represented in order to hear about the Association's activities and to receive the accounts. This is especially because it is already clear that the financial results for 2008 will diverge significantly from the trend of previous years. In particular, the LBMA has experienced a substantial loss on its ordinary activities in 2008. This was due to a number of increases on the cost side, some of which were foreseen while others were the result of unexpected developments. Thus the budget for 2008 allowed for increases in rent and rates as a result of the Executive's relocation to a somewhat larger office and it was also expected that the conference in Kyoto would be significantly more expensive than the one the previous year in Mumbai. Unfortunately, the conference costs were even higher than the forecast, primarily due to the fall in value of sterling against the yen in the latter part of the year when the conference was held.

Another unexpected development was the requirement to undertake a large amount of work on the subject of REACH including three Members' seminars and the employment of a range of consultants to advise the LBMA and its Members on the issue. A further unbudgeted cost was the result of a decision by the Management Committee to provide seed capital for the Reference Materials Project (though this will be repaid on completion of the Project this year). Good Delivery costs have also risen because of an increase in testing fees levied by the LBMA's referees and the increase in the cost of reference samples, which are used in both proactive monitoring and for the testing of Good Delivery Applicants.

Given the deterioration of the LBMA's financial position, the Finance Committee recommended a course of action to bring the accounts back into balance. This has included both cutbacks on the expenditure side and increasing income from Membership subscriptions (the first increase since 1999) as well as increasing the maintenance fees for Good Delivery accreditation (the first increase since 2004).

I hope that all Members with an interest in the Association's finances will come to the AGM on 11 June to hear a more detailed account of our financial position. ■

Charitable Giving – April 2009

The GOFO & SIFO Non-Contributor Fines collected in 2008 have allowed the LBMA to make a number of donations to charities supported by market participants

- **Arthritis Research Campaign** - Donna Kehoe of the Bank of England recently ran the London Marathon in support of Arthritis Research. Donna is responsible the Bank's custody operations, including the bullion vault. For further information or to contribute, please see Donna's webpage: www.charitiestrust.org/members_data/event/donnakehoerunsthemarathonagain/index.html
- **Get Kids Going!** - Alan Wallis of Comdaq Metals recently ran the London Marathon in support of Get Kids Going, a charity that helps disabled children and grown-ups participate in sporting activities. Alan is also collecting funds for Demelza House, a donations-only run charity supporting a children's hospice which is located in his hometown. For further information or to contribute, please see Alan's webpage: www.justgiving.com/alanwallis
- **National Association for Colitis and Crohn's Disease** - Ross Norman of TheBullionDesk is running the Great North Run, in support of the NACC. Ross will be running this half marathon in Newcastle in September. For further information or to contribute, please see Ross's webpage: www.justgiving.com/rossnorman1

facing facts

Paul Burton
Managing Director
GFMS World Gold Ltd

It can hardly have escaped anyone's notice that the past year has been a turbulent and difficult time for those involved in the gold industry and the mining industry as a whole.

Although good gold prices have sustained producers, the equity markets have provided little comfort for shareholders. Nowhere was this more apparent than in London. 2008 was a pretty brutal year for London's Alternative Investment Market (AIM), home of most gold and other mineral companies. Ernst & Young, which tracks its "Mining Eye" index of the twenty largest mining companies on AIM, saw it lose 75% of its value over the course of the year. EY also notes that mining companies on AIM at year end were worth just a quarter of their £16 billion value of six months earlier. *Mining Eye* quarterly notes: "Perhaps most shocking was the speed and intensity with which one extreme gave way to another. It was just March when the *Mining Eye* index reached an all-time, five-year high, supported by historically high metals' prices, at least in nominal terms."

Not only did the market value of the sector decline, but the

level of listing activity fell off dramatically. Ernst & Young reports that the last mining IPO was in June 2008 and, in total, only around £1 billion was raised on the exchange, less than half that of the previous year. The gold companies were somewhat insulated from this rapid decline in commodity demand but nevertheless were hit by the general sell-off of equities.

One can sense the industry mood, if not the market mood, at the various investor conferences around the world, of which there are many in the first few months of the year. The overriding impression from talking to companies in Vancouver, Cape Town and Toronto in recent months is that that deals will result from these get-togethers, but these deals will represent consolidation of the industry, rather than expansion through new investment, as cash-rich companies pick off struggling one-project companies.

At least the capital markets have picked up, with some financings at the producer or near producer level. The following list is not exhaustive but some of the more significant financings include:

- Great Basin Gold raised C$130 million for its Hollister and Burnstone development projects.
- Lihir Gold completed a US$325 million institutional placement.
- Newmont Mining issued shares and convertible notes for total proceeds of US$1.7 billion (net) to fund the minority stake in Boddington.
- Agnico-Eagle completed a US$290 million private placement.
- Kinross raised gross proceeds of US$415 million through an underwritten share offering.
- Newcrest raised A$750 million through an equity placement to institutions.
- Alamos Gold raised C$83 million.
- Osisko Mining raised C$403 million through a bought-deal public offering.

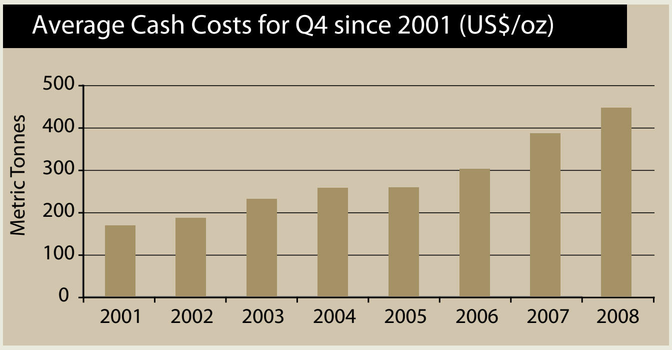
So it looks as though major development projects will have the necessary funds to progress, whether in single-project or multinational companies, and some of the majors are increasing their war chests.

Operating Costs on the Decline

Another glimmer of good news for the industry is that operating costs are finally being reined in. Cash costs for Q3 2008 recorded a massive 31% year-on-year increase, the highest year-on-year increase on record. The average cash costs of the 70 or so producers we report on in *World Gold Analyst* reached US$474/oz, a record quarterly high. However, quite remarkably, cash costs actually dropped in Q4 to US$439/oz, a fall of 7% from Q3. Although on a year-on-year basis, average cash costs were once again up, the rise was half that of what we have witnessed over the past few years (see chart).

Why is this happening? We have been hearing from producers anecdotally over the past few months that the financial crisis in the markets has led to the suspension of many development activities, with the result that labour and equipment is more freely available now and the collapse of the oil price has led to lower power charges, so it's not that surprising that after many inflationary years, cash costs may have peaked.

This improvement is despite the fact that many of the polymetallic producers saw their costs increase significantly as the offsetting credits from by-products were severely curtailed because of the rapid and extreme decline in base metal prices. In some cases, this meant the disappearance of the negative cash cost phenomena.



Average Cash Costs for Q4 since 2001 (US$/oz)

The Majors in 2008

The majors, the most valuable companies in the gold industry by market capitalisation, remain the backbone of gold output. Barrick Gold is the largest gold company in the world, with gold production of 7.7 Moz in 2008. Newmont Mining's gold sales were 5.2 Moz, putting it in second place. Although it is the second most valuable gold company, Goldcorp is the second-smallest gold producer of the selection, with 2008 production of just 2.3 Moz.

2008 Gold Production (Moz)	
Barrick Gold	7.66
Newmont	5.18*
AngloGold Ashanti	4.98
Gold Fields	3.34**
Goldcorp	2.32
Kinross	1.84

* Gold sold

** Gold Fields has a June financial year end. This figure is taken from quarterly reports by World Gold Analyst.

The reserve base held by the companies is another important measure that indicates whether or not the majors can sustain such production rates. Barrick Gold holds the largest reserve base, with almost 139 Moz, more than 63% greater than its two nearest rivals Newmont and Gold Fields.

2008 Reserves (Moz)	
Barrick Gold	138.5
Newmont	85.0
AngloGold Ashanti	74.9
Gold Fields	84.8
Goldcorp	46.3
Kinross	45.6

In terms of cash costs Barrick, Newmont and AngloGold are all bunched round the US$440/oz mark (within the second quartile on the 2008 cash cost curve), with the two outliers Gold Fields at US$525/oz and Goldcorp at US$305/oz. Goldcorp costs are presented on a by-product basis after accounting for credits from by-product copper revenue for Peak and Alumbrera, and by-product silver revenue for La Coipa, Marlin and San Dimas. On a co-product basis, Goldcorp's cash costs are US$391/oz.

2008 Cash Cost (US$/oz)	
Barrick Gold	443
Newmont	440
AngloGold Ashanti	444
Gold Fields	525**
Goldcorp	305
Kinross	421

Finally, as I alluded to earlier, the cash-rich companies are in a strong position at present, as there are many cheap projects around that could be snapped up in order to grow resources. The table below shows how much cash the major producers were holding at the end of 2008. ■

End 2008 Cash (US$ million)	
Barrick Gold	1,440
Newmont	435
AngloGold Ashanti	575
Gold Fields	109
Goldcorp	262
Kinross	491

Paul Burton

paul.burton@gfmsworldgold.com

The Alchemist is published quarterly by the LBMA.
For further information please contact Stewart Murray, LBMA Chief Executive
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The *Alchemist* is produced by Alice Toulmin and Ruth Crowell

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY
REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: + 41 91 695 04 50 e-mail: info@pamp.com
fax: + 41 91 695 04 51 web: www.pamp.com

LBMA

Alchemist

The London Bullion Market Association ISSUE 55 July 2009

In this Issue:

The Scottish Thistle – First appeared on silver coins in 1470 during the reign of James III and from the early 16th century, it was incorporated into the Royal Arms of Scotland. In this edition, the *Alchemist* looks ahead to the LBMA's annual Precious Metals Conference in Edinburgh.

METALS

COMMODITIES \ INTEREST RATES \ EQUITIES \ FX \ ENERGY \ WEATHER

The total metals marketplace.

Trade Metals Products:

- Most extensive and liquid metals futures market in the world, including benchmark COMEX gold and silver contracts
- More than 100 years of proven safety and security with CME Clearing
- Access around the world on CME Globex – the most reliable electronic trading platform
- Mitigation of credit risk by clearing OTC transactions through CME ClearPort
- Availability of both physically delivered and financially settled futures contracts

In today's metals market, more opportunities are available than ever before. CME Group's broad product suite offers the financial safeguards of clearing, plus flexible trading solutions. Together, our precious, base and ferrous products comprise the world's most liquid metals futures market. And now that COMEX and NYMEX are part of CME Group, the world's leading metals marketplace is gaining new strength. Learn more at **www.cmegroup.com/metals**.

CME Group
A CME/Chicago Board of Trade/NYMEX Company

CME Group is a trademark of CME Group Inc. The Globe logo, CME, Chicago Mercantile Exchange and Globex are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange Inc. COMEX is a trademark of Commodity Exchange Inc. These contracts are listed with, and subject to, the rules and regulations of NYMEX and COMEX. Copyright © 2009 CME Group. All rights reserved.

How Might Gold Perform During a Period of Deflation?

By Nicholas Brooks, Head of Research and Investment Strategy, ETF Securities

It is well known that gold tends to perform well during periods of high inflation. It is less well known how gold might perform during a period of global deflation.

In a high inflation environment (or in anticipation of one) investors increase in their demand for gold as a hedge against the erosion of the real purchasing power of paper currency. In a period of global deflation investors and the public increase their demand for gold as a hedge against paper currency debasement, a hedge against financial counterparty failure and the rising risk of private and public sector default.

Most analyses have focused on gold's outperformance during periods of high inflation. Less has been written about gold's performance during periods of global deflation, mainly because there are few examples of global deflation in the past century. During the only extended period of global deflation – the Great Depression of the 1930s – the gold price was fixed as most countries were on the gold standard, making it difficult to analyse gold demand during the period.

Pent-up Demand for Gold During the Great Depression

One way to get an idea of how gold might have performed if it had been allowed to trade freely is to look at how gold appreciated against individual countries' parity rates as countries went off the gold standard in the 1931-34 period. As can be seen in Figure 1, the gold price surged against most currencies once they freed themselves from the fixed rate, implying substantial pent-up demand built up during the deflationary years.

Loss of Confidence in Paper Money During Periods of Deflation

There is a clear logic to why gold demand should rise during periods of global deflation. Most periods of deflation are accompanied by sharp declines in domestic demand and systemic financial sector problems. Governments and central banks are forced to step in aggressively to offset the slowdown in private sector demand and repair the balance sheets of financial institutions. This generally leads to large injections of paper currency into the financial system and sharply higher government debt levels.

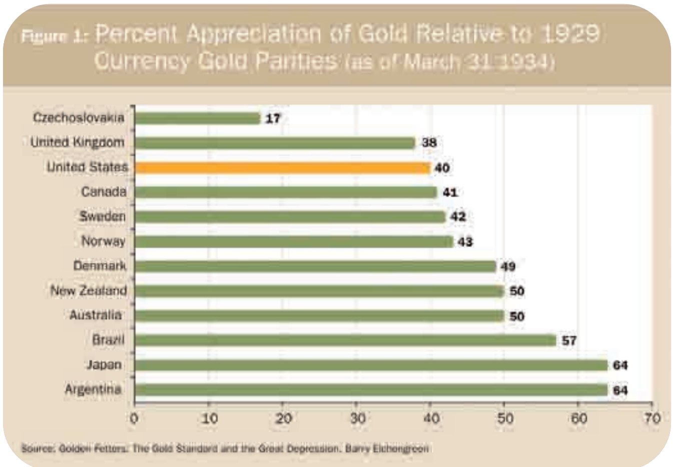


Figure 1: Percent Appreciation of Gold Relative to 1929 Currency Gold Parities (as of March 31 1934)

Source: Golden Fetters: The Gold Standard and the Great Depression, Barry Eichengreen

As the supply of currency rises and concerns about debt levels rise, investors fear paper currency devaluation and look for alternative assets to hold. In addition, concerns about financial institution – and even government – solvency and counterparty risk raises demand for alternatives to paper currency.

In an environment like today's, when all major economies are facing severe recession, potential deflation, systemic financial sector crisis and the risk of currency devaluation (similar to the situation during the Great Depression), gold stands out as the main alternative to paper currencies.

Confiscation Risk Low as No Policy Link to Gold4

During the Great Depression, when the gold price was fixed, demand for gold manifested itself in large declines in the government's gold stocks as the public and investors (domestic and foreign) demanded gold in exchange for their dollars. Ultimately, as gold reserves fell towards mandatory minimum levels in early 1933, Roosevelt was forced to require the surrender of all gold held by the public at a predetermined price, halt gold exports, and devalue the dollar against gold. It was either that or completely remove the link to gold.

It is important to emphasise that in the current situation, where there is no policy link to gold, there is no similar rationale for governments to confiscate gold as there is no artificial peg to gold restraining their policy options.

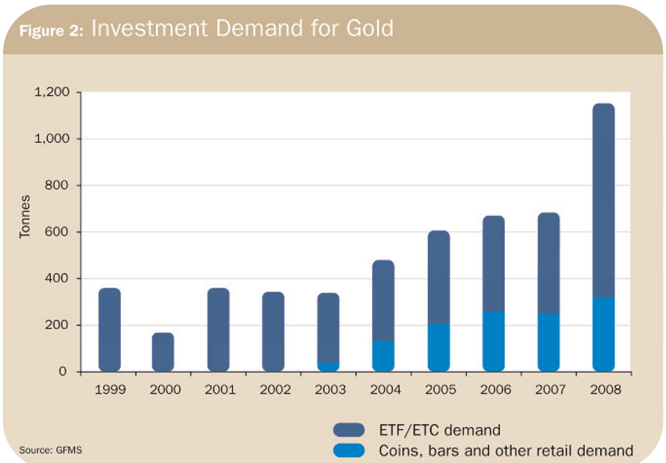
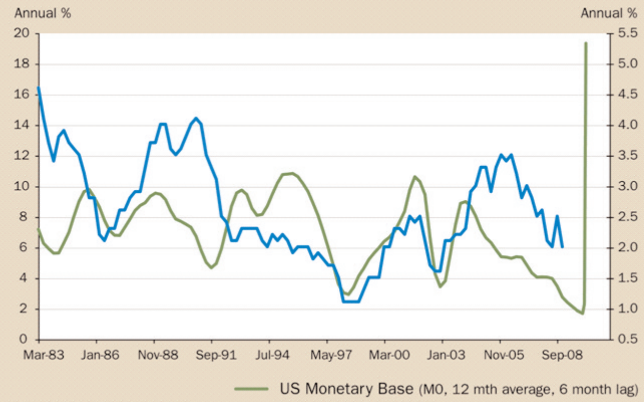


Figure 2: Investment Demand for Gold

Source: GFMS

Figure 4: US Base Money Growth and Inflation



Source: Bloomberg, US Federal Reserve

Under the gold standard that prevailed in the run-up to and through much of what is now known as the Great Depression, governments were forced to artificially support their currencies to maintain their parity rates, thus restricting their ability to reflate their economies through aggressive monetary stimulus. It was a classic case of the "macroeconomic trilemma", where policy makers under an open capital account are able to control their monetary policy or their exchange rate, but not both. In fact, many economists directly blame the policy restrictions caused by rigid gold pegs for turning what might have been a modest recession into a severe global depression.

Roosevelt chose to effectively close down the public's ability to convert into gold in order to regain control over monetary policy. Today, with no major currency pegs to gold, there are no artificial constraints on monetary policies and therefore no need for governments to confiscate gold. In fact, any direct meddling in the gold markets by governments would likely be counterproductive by increasing investor anxiety and encouraging a rush to other hard assets such as silver or other precious metals.

While there are no gold pegs to break today, this does not mean that a similar gold price dynamic will not evolve. During the Great Depression, as the pressure on governments to reflate became unbearable, pegs were released and currencies fell sharply against gold, much like water breaking through a dam (see Figure 1).

In a world of relatively flexible exchange rates, there is no dam to break. A more likely scenario is a gradual but steady flow of assets away from paper currencies towards hard assets – particularly gold – as governments step up reflationary policies and their debt levels build. Already this is being reflected in rapidly growing investment demand for gold as illustrated by the GFMS statistics below.

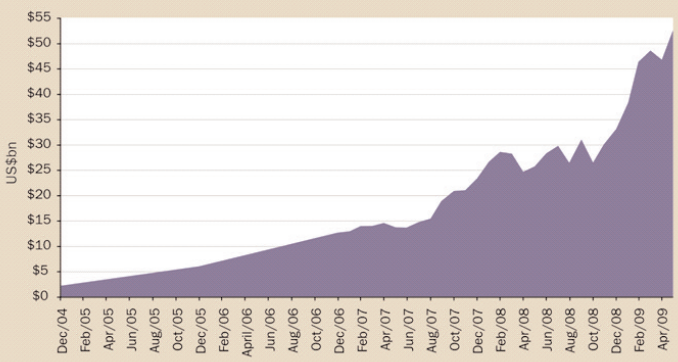
Exchange Traded Commodities (ETCs) and ETFs have become one of the main ways for investors and the public to gain access to physical gold. Assets in gold ETCs rose to over $53bn by the end of May 2009, up from less than $5bn only four years ago. Flows into ETCs have continued to build even during periods when the gold price has been falling, indicating that strategic investors are increasingly using ETCs to build long-term positions in gold.

ETF Securities, physically-backed gold ETCs, ETFS Physical Gold (PHAU) and Gold Bullion Securities (GBS) have seen over $2bn of new inflows over the past 12 months and over $1.4bn since the beginning of the year. Total gold holdings of these two ETCs now stand at $7.1bn, the largest ETF holdings in Europe and second largest in the world.

Deflation Followed By High Inflation

There is a risk that the massive monetary stimulus being injected across world financial systems will eventually find its way into real economies and ultimately into prices. It is hoped, of course, that central banks will be given the political leeway to retract the monetary stimulus before high inflation becomes entrenched. Unfortunately, history shows that great monetary stimulus is often followed by rapid inflation increases. Certainly, this was the case after the Great Depression, when deflation was swiftly followed by high inflation. As Figure 4 shows, we are now seeing an unprecedented surge in US base money growth. Although the lags can be long (depending on economic and policy conditions and the time it takes to repair banks' balance sheets), there is a clear link between money growth and inflation. If history is anything to go by, after a period of deflation, the world may swiftly move into a high inflation environment. If this scenario plays out, gold will likely be a strong outperformer for many years to come. ■

Figure 3: World Physically-Backed Gold ETF/ETC Holdings



Source: World Gold Council

Nicholas Brooks

is Head of Research and investment strategy for the ETF Securities group of companies. Nicholas has over 15 years' experience as a global economist and strategist, covering a wide range of markets and asset classes.

Prior to joining ETF Securities, Nicholas was a senior member of Henderson Global Investors' asset allocation and strategy team based in London. Before that he was senior economist on Deutsche Bank's top- ranked Global Markets strategy and economics team.

He started his career at Citibank in New York. Nicholas has a BA from Brown University, an MA from Columbia University, a MSc in Economics from the University of London. ■

Gold and Silver Clearing

"Loco London" Through the Central Hub Developed by London Precious Metal Clearing Ltd

By Peter L.Smith, Executive Director, JPMorgan Chase Bank NA

The LBMA has requested that I provide some additional clarity on the methodology employed to develop the monthly clearing statistics. Since my original article about London bullion clearing for the Alchemist (issue number 6) written a distant 13 years ago, much has changed, but much has also remained the same.

For example, I said back then that not everyone would be familiar with what was behind the phrase "Loco London" or its significance in comparison to the volume of bullion business worldwide. It was a phrase added routinely at the conclusion of a bullion transaction, or used by commentators when analysing the importance of the London bullion markets.

The then reality of London being the global clearing centre for OTC traded gold and silver remains as true today as ever and, perhaps even more so, with the rising establishment and growth of several new exchange traded bullion markets and platforms around the globe impacting upon London OTC bullion trading volumes. In fact, OTC Loco London is usually the preferred market to use when squaring off any exchange positions, and the general level of bullion cleared "Loco London" remains very robust. To date, in 2009, the average value of gold and silver cleared is in excess of $20 billion each business day (see graph or for detailed bullion clearing statistics, please visit the LBMA website, which publishes the data each month under "Market Statistics").

On the other hand, back in 1996, there were eight Clearing Members but, with some painful realignment of priorities, two members have since decided to exit the Loco London gold and silver clearing business.

Today, the remaining six bullion clearers, each a major bank, are the joint shareholders who created "London Precious Metals Clearing Ltd" (LPMCL), which owns and runs the central clearing system for the daily settlement of gold and silver transfers. These six members of LPMCL are:

- Barclays Bank PLC,
- Deutsche Bank AG – London Branch,
- HSBC Bank USA National Association – London Branch,
- JP Morgan Chase Bank NA – London Branch,
- The Bank of Nova Scotia – ScotiaMocatta,
- UBS AG.

Thirteen years ago, the bullion clearers were exchanging transfers between themselves by telephone instructions – a situation that was causing considerable problems in the control and audit departments within those banks.

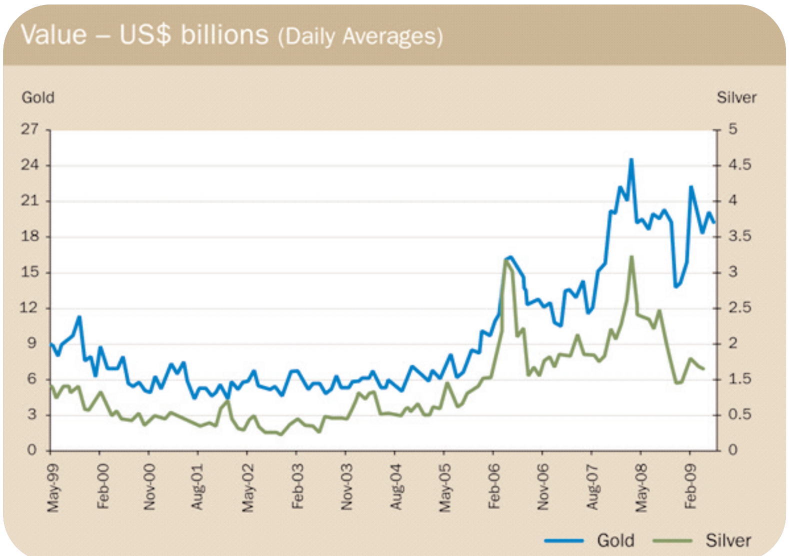
Because of those concerns, the clearers realised that the only sensible and secure solution was to develop a central clearing hub, where transfer instructions could be up loaded and matched. This resulted in the establishment of LPMCL in April 2001.

For more detailed information regarding LPMCL, please visit its website – www.lpmcl.com. The six bullion clearers provide the LBMA with figures for amounts cleared each month, taking three measures for each of gold and silver:

Volume: The amount of metal transferred on average each day measured in millions of troy ounces.

Value: The value measured in USD, calculated by multiplying the voume figure by the monthly average London pm fixing price for gold and the average London fixing price for silver.

Number of Transfers: The average number recorded each day.



For these figures to be correctly understood, it is necessary to give some definitions. The figures contain:

a) Loco London book transfers from one party in a Clearing Member's books to another party in the same member's books or in the books of another Clearing Member

b) Physical transfers and shipments by a Clearing member, both for its own account and on behalf of a client.

c) Transfers between a clearing member and the Bank of England, all such transfers involving the Bank of England are "physical" and may also be for either the account of the clearing member itself or on behalf of a client.

Most importantly, when collating these statistics, in order to eliminate "double counting", only the debit side of each transfer transaction is recorded by each clearing member.

Accordingly, we are confident that the reported statistics are not over-inflated.

However, it should be pointed out that as virtually all gold and silver wholesale traders net all their trades for the same value date, with each of their counterparties, the clearing statistics mask the actual underlying value of daily Loco London OTC trading. In my opinion, the numbers are probably understated by as much as a factor of three times, or possibly even more during busy market periods / periods of high volatility in the market.

Excluded completely from the statistics are: allocated and unallocated balance transfers between clearing members, where the sole purpose is to reduce or eliminate overnight credit risks.

Thus if clearing member "1" has an unallocated gold and/or silver balance at clearing member "2", which when valued at current market prices creates a value in excess of the overnight risk limit, as approved by its Credit Department, then clearing member "1" has two possible options:

a) It can either ask clearing member "2" to transfer an amount of gold and/or silver to another Clearing Member where there is some unused credit capacity sufficient to eliminate the excess credit exposure at Clearing Member "2",

b) or alternatively, they can ask Clearing Member "2" to allocate an amount of gold and/or silver in their own vaults, or an alternative mutually acceptable vault, sufficient to extinguish the excess credit exposure.

London being the global clearing centre for OTC traded gold and silver remains as true today as ever and, perhaps even more so, with the rising establishment and growth of several new exchange traded bullion markets and platforms around the globe impacting upon London OTC bullion trading volumes.

Physical movements arranged by Clearing Members in locations other than London; for example, a shipment of physical gold or silver bars from a Clearing Member's stock held in say Zurich to Istanbul would not be included in the statistics.

This position is treated in the same way for such movements for the Clearing Member for their own account, as well as for movements effected for and on behalf of a Client of the Clearing Member.

The LPMCL Clearing hub (AURUM) has proven to be reliable and, over the last 18 months or so, has been a true boon for the Clearing Members' back office staff who had to cope with significant volume increases as the market heated up in response to the global credit crisis. Without the efficiency of the system, there would have been many more late nights and, with the heightened concentration on risk, the controls people would have been faced with would have created a much more complex task manually trying to determine underlying exposures.

In these fast-moving times, the market through LPMCL is continuing to adapt to events and challenges. A couple of issues that will shortly impact the clearing include a request from The London Platinum and Palladium Market to provide "Loco London" clearing for later this year. Additionally, certain Exchanges are currently developing systems for "cleared gold forwards", the earliest of which is planning to launch imminently.

Fundamentally it is still true that much of the clearing methodology remains unchanged, with the main driver in today's market place being the need to achieve greater efficiency in delivery and accuracy to handle large volumes which, in turn, requires continual technological development. ■

Peter L. Smith

is an Executive Director at JPMorgan Chase Bank NA., London and Global Head of Physical Precious Metals Marketing, Clearing and Vaulting.

Peter joined JPMorgan's credit department in 1970, becoming Department Head in 1974.

Since the development of JPMorgan's bullion trading business in late1979, Peter ran the bullion mid and back office for London. For the last nine years he has marketed JPMorgan's bullion clearing and vaulting services, and been responsible for global physical precious metal transactions.

Peter has been involved with the London Bullion Market Association, since the inauguration of the Physical Committee in 1987, and as the PC Chairman since 1992.

He is Chairman at London Precious Metals Clearing Limited, which runs the centralised system for the daily settlement of precious metals in London. He recently joined the Management Committee of the London Platinum and Palladium Market as Vice Chairman. ■

Jeremy Charles:

HSBC to HSBC via the Scenic Route

By Jeremy Charles, Managing Director, HSBC Bank USA NA

As Jeremy Charles stepped down as the LBMA Chairman in June, the Alchemist retraces his steps to find out about his experiences and views on the London bullion market.

Q: What attracted you to work in bullion in the first place?

A: I think that like many people who are involved in the London market now, it all happened by complete accident. At school, I was interested in maths and geography and had an interest in the natural world, which is about as far away from the bullion business as you could possibly get.

Q: How did you get your first job?

A: I left school at 19 with a very arrogant attitude of "I'm fed up of being told what to do!" I'd spent four years at Trent College, a private school in Nottingham, for the latter part of my education and although I had a wonderful time there, I felt I'd had enough and that the time had come to find a job.

Unfortunately, during the mid 1970s, the UK was not in a strong economic position and there were few jobs available in industry. As a result, I was stuck in deepest darkest Derby with very limited prospects, until I saw an advertisement in one of the newspapers looking for "someone with 2 A levels who enjoys travel". That small ad really appealed and I thought: "That's for me!"

I came down to London for the interview, which turned out to be at HSBC. They offered me the job on the basis that I got two suitable grades at "A"-level, but to my horror, when I finally received the letter informing me of my grades, I'd missed out by the smallest of margins and, as a result, they were unable to offer me the job. So there I was at the end of summer 1975 with no job. I then wrote off to a few other banks on the off-chance and one of those I'd contacted, N M Rothschilds, called me up almost immediately for an interview. I was offered the job on the Friday and I said I'd start on the following Monday, without even thinking about it or talking to my parents about it. I moved down to London over the weekend, and that was it! On my first day in the job, I was told I was in the Bullion Department; I thought the very imposing HR lady said the bullying department, which sounded quite interesting if a little unusual for a bank but anyway, I just wanted to earn some money and be independent.

Q: What were you doing in your first job at Rothschild?

A: My first responsibility in my new job was looking after the Comex margining. Comex was a relatively new exchange at that time: that was where it all began for me. When I joined, the bank had just taken on 12 young people, the result of which was to lower the average employee age, very considerably; I had a fantastic time at Rothschild. The 12 of us, 18/19-year-olds amongst all these mature people, was just great. We'd do childish things like swap the managers' desks around; and for all of us, it was just going straight from school to an environment that we treated just like school, but where I was getting paid for it! It was a lot of fun and we had some hilarious times there. I really look back with great affection and gratitude for the time I spent at that brilliant institution.

Q: How did your career progress?

A: At Rothschild, I covered every aspect of the operations side, which really was a great foundation for me. I was based in Croydon where the operations staff were situated. The dealing room and all the senior people were up at New Court. I was normally in at 7 in the morning, and would pop out for my breakfast and to read the papers at about 9 o'clock. I never asked anyone or told them where I was going; I just went out when everyone else was arriving. I did this every day for three years without even thinking about it, but it turned out to be a bit of a mystery among my colleagues, so much so that one morning they followed me to find out where I was going! I'm sure that the 'English & Continental' still serves up tea and toast in the Whitgift Centre.

Some of the graduates would come down from New Court and spend a morning with us, listening to what we had to say and spending

The English & Continental, Croydon

some time in the operations before going to the dealing room. I remember John Bishop, who went on to be a very senior employee at Rothschild, asking me about the Comex margining. He was on the graduate training scheme and was going on to the dealing room. I thought this sounded very exciting and after three years of being there, I had decided that a "dealer" was the career I now wanted, even though I had no idea what that actually entailed.

There weren't any vacancies at that time and I was told to come back in six months, but after waiting for what seemed to be forever, there was still nothing available due to the graduate training scheme, and I left Rothschild to look for pastures new and along came Johnson Matthey Bankers. The average age at Johnson Matthey was much lower than at Rothschilds. I was surrounded by lots of young people all of whom seemed to share a common goal – do a good day's work and then go down the pub for six hours.

When I was interviewed by JMB, I'd said I wanted a chance in the dealing room, but they

wanted me in the operations department. They had a lot of relatively inexperienced people in operations at that time and they said if I spent some time there they'd then give me a chance in the dealing room.

Soon after I joined, I identified a serious flaw in a number of accounts, which I mentioned to a 60-year-old manager, who didn't take too kindly to a 22-year-old telling him he wasn't doing things correctly. To his credit, however, I was given sufficient opportunity to explain the situation and I was proven right. I discovered a $110,000 error on one account alone, which had to go to the board for ratification.

If you wanted a chance in the dealing room, the bank would give you a three-month time frame to prove yourself and for you to find out: a) did you like it and b) did the dealers and managers like you. I got my chance in a memorable year for gold: 1980!

I was very fortunate because half way through my three-month trial, the bank suddenly announced that it was opening an office in New York. All of our senior dealers were sent out to New York, so even though I was a trainee still getting the teas in for the dealers, I was going to have to run one of the books. It really was a case of sink or swim. I remember the first two deals I did, which were in platinum. I made $1,000 and you wouldn't believe how much I boasted to my friends about the fact I'd now "made it", followed of course by a good six-hour session celebrating my new-found career.

Q: Were you involved in the fixing at Johnson Matthey Bankers?

A: Yes: I remember going to the fixing in a very grand room at Rothschild, where you have your Union Jack flag on your desk and you had to perform what was initially a very difficult task, listening to what the other four members were saying as well as taking the instructions you were receiving from your dealing room. Going there for the first time on your own was always a frightening experience given the mystique surrounding the gold fixing.

I remember one day, Martin Stokes, the chief gold trader at that time, telling me he was short of gold and that he was hoping the fixing price would fall sufficiently far for him to take his short position back for a suitable profit. The instruction I received, however, was to sell 40 bars, which at the time was quite a lot of gold. I was also told at the same time that whatever happened "do not let the price fix". I put my declaration in "Johnson Matthey a seller". The figures came over:

Jeremy opening the conference in Kyoto.

"Johnson Matthey offer 40 bars. Rothschild buy 40 bars." Fixed. My heart sank and I thought "Oh dear, I'm sure that's not what Martin wanted… my dealing career has been a short-lived experience and I am going to be fired." On my return to the office, however, Martin was very calm and said that it wasn't my fault in any way. I really respected Martin for taking that attitude and it was one of the many lessons I learned from some of the tremendous people who I worked with.

Q: What memorable experiences did you have during your time at JMB?

A: There were many, but I guess the most memorable would have to be the infamous Brinks-Mat job, a £26 million bullion robbery of 6,800 of our gold bars! We were large players in the physical markets during the 1980s and we had arranged for a large shipment of gold to be sent out to Singapore. The delivery was due to go to two of our clients and had been prepared for shipment over the weekend of the 26 November 1983. The gold had been handed over to the transportation company for delivery and as we left the office on Friday evening, no one had any idea that our gold would become the most high-profile crime ever to take place in the UK! My job was to contact the unfortunate recipients of this delivery to inform them that due to "unforeseen circumstances", there would be a small delay in the delivery of their metal. I don't recall the responses from our clients but I'm sure that they never imagined it would be due to the UK's largest crime!

Q: Are there any people still in the market with you from the JMB days?

A: Yes, there are still a lot of people in the market who will recall those JMB days very well, it was a fantastic grounding. Gerry Robinson and Simon Churchill were both in the operations side with me at JMB. Martin Stokes, David Spraggs, Rupert Prest, David Corcoran and Clive Turner all spent a lot of time at JMB, and of course my great friend David Rose, who I still work with after 26 years.

Q: How did JMB eventually "become" HSBC?

A: Johnson Matthey Bankers were taken over in 1984, after someone managed to lend out pretty much the entire bank's capital and then didn't get paid back. Fortunately for me, JMB held a lot of central bank accounts in gold and so the Bank of England had to step in. The Bank was concerned about systemic risk to the gold market as JMB was such a big clearer. I worked for the Bank of England for about a year before the company was bought by Mase Westpac. Mase was started by Warren Maji, who had come up with a novel idea to offer gold loans for financing gold mines in Australia. It was a very entrepreneurial business and the idea enabled the industry to expand massively across the globe.

Westpac sold the business to Republic National Bank, whose prime business was trading. Republic was not keen on the producer side of the business, but did like the physical and the trading business. The centre of Republic's business was in New York, but as we were based in London, we did give them the global reach they were looking for at that time. There was a very limited management structure at Republic, which enabled it to be extremely dynamic. I don't recall there being a compliance officer at the Bank and I certainly never met one. There were no written contracts that I can recall and it appeared that business was done on the shake of a hand. Oh how times have changed!

At the end of 1999, HSBC bought Republic National Bank primarily for the private bank business. However, with this business came two unusual niche businesses, the Precious Metals and Banknotes, which were both then integrated into HSBC's infrastructure.

It was an Aladdin's cave for me coming from Republic, where we had no corporate customers. Suddenly I had thousands of corporate opportunities. At HSBC, Rep Nat had brought the trading business, but I now had industrial consumers, and all of a sudden there was another area of business that I could turn my attention to and I loved it. HSBC was the icing on my cake as far as career was concerned. I had the world open to me and I had every type of

client, every type of institution, the infrastructure support and the backing to do any sort of business I wanted to do. They did have a compliance officer, many in fact!, and something called documentation that apparently clients all had to sign.

Q: What is the biggest change you have seen since you joined the business?

A: In 2002, someone who I'd never heard of before, Graham Tuckwell, called me up completely out of the blue with an idea he wanted to talk to me about. His idea was to offer securities on the Australian Stock Exchange that would be 100% backed with physical gold. I thought this was an interesting idea but at the time, I never realised it would be as successful as it has become. Together with Graham and two of my HSBC colleagues, we developed the first gold ETF, which was launched on the Australian Stock Exchange in 2002. Other ETFs later came along and, for me, the growth and development of this business has been the most significant change since I joined the business in 1975.

Q: What was your first experience of the LBMA?

A: When I joined the LBMA, there was very much a focus on the physical aspects of the business, which I had always been fascinated by. I felt the LBMA would be good for business, and a good place to make new contacts. As time has passed, however, it became more of an opportunity to use my experience for the benefit of the London market as a whole. There have been a lot of threats to London's position over the years and it would have been easy to ignore that threat. I simply could not do that.

Q: How has London's role changed over the years?

A: The change has been enormous. A number of people tell me that London's influence has diminished, but that is not the case at all. I think the trading volumes may have slowed down but the reason for that is due to the fragmentation. A lot of global markets now compete with the OTC market.

Jeremy receiving his award for his time as Chairman

Spot trading has changed and of course a lot of people focus on spot trading, but that is not only what the OTC market is about. What you can't forget is that London's products and services are much broader than just the spot trading element.

The LBMA's Good Delivery List is used by every major exchange, and people realise globally that the experience and the expertise to know what a physical gold bar actually is basically resides in London's vaults. Government authorities come from around the world and look at how the institutions structure themselves and how the market works here. They come to us from a customer's perspective, from a regulatory perspective and from an operational perspective. This role of the London market is much more important than most people realise. Also the range of products and services has grown enormously and London's influence is greater now than at any time in the past.

Q: What about the role of the forward market and the challenges that lie ahead?

Jeremy in 6-hour mode

A: The forward market is significant and the reason for this is that it provides the foundation for most of the bullion financing that goes on around the world. There are many contracts based on a Libor minus GOFO plus a credit spread and the LBMA's provision of the GOFO benchmark is of crucial importance to all those who make deposits, take loans or trade as a result of these activities. Being responsible for this benchmark is a vital role of the LBMA.

A number of exchanges are interested in providing a solution to mitigate credit risk in the forward OTC market. This is definitely going to happen and the LBMA members need to understand and embrace this idea, and take it forward. In my opinion, it is not appropriate for the LBMA to give direction to the members on this matter. I think when we reach implementation, it will be a big benefit to the OTC market as a whole, but those discussions are ongoing and I'm sure that the winners will be those who are able to provide the right service at the right price in the right regulatory environment.

Q: Now that you are no longer the LBMA Chairman, what are you going to do with all of this spare time?

A: Well perhaps I should start off by saying that the experience I gained at the LBMA was invaluable. It opened my eyes to another aspect of the business and I am extremely grateful to both the Executive and to the Management Committee members for giving me such tremendous support during my time at the LBMA. I would really encourage everyone to participate in some way at the Association.

We are entering a new age and we as a market have got to be forward thinking. That is going to require a new set of people with a fresh set of ideas, who are going to be plugged into the needs of tomorrow's market as well as today's. As for myself, I'm not sure that I will have any spare time. I have a large business to manage at HSBC, which I find extremely enjoyable as well as challenging and that's probably enough to keep me on my toes for the time being. Those six-hour evenings sound quite tempting again too though. Anyone for a pint? ■

2009 LBMA Precious Metals Conference

By Ruth Crowell, Executive Coordinator, LBMA

Conference Programme Announced & Registration Now Open

The tenth annual LBMA Precious Metals Conference will be held at the Balmoral Hotel in Edinburgh Scotland. The Balmoral is a historic British railway hotel, located in the heart of Edinburgh at 1 Princes Street.

Networking opportunities begin with the LBMA Welcome Reception, on Sunday, 1st November, 2009. The Welcome Reception and will take place in the Sir Walter Scott Suite of the Balmoral Hotel. Monday evening delegates will have the opportunity to enjoy authentic Scottish culture as well as networking at the LBMA Drinks Reception and Conference Dinner.

Paul Mercier of the European Central Bank will open the Conference with a keynote speech, followed by Michael Cross of the Bank of England. Sessions will include in-depth discussions of the impact of the financial crisis on the precious metals industry, precious metals investment, silver, PGMs and a panel discussion on the future of the London precious metals market.

There's a place for all market players at the LBMA Conference – make sure to reserve yours now.

Sunday, 1 November

Welcome Reception

Day 1 – Monday, 2 November

Opening Session:

Welcome – LBMA Chief Executive

Introductory Remarks

LBMA Chairman, Kevin Andrew Crisp, Mitsubishi Corporation UK plc

Keynote Speech

Paul Mercier, Deputy Director General of Market Operations, European Central Bank

The Role of the Bank of England – Michael Cross, Head of Foreign Exchange, Bank of England

Session 2: Impact of the Financial Crisis on the Precious Metals Industry

Chairman – Steven Lowe, Bank of Nova Scotia, ScotiaMocatta

Issues Facing Producers – Mark Lynam, Executive Officer, AngloGold Ashanti Limited

Issues Facing the Jewellery Industry – Aram Shishmanian, Chief Executive Officer, World Gold Council

Issues Facing Refiners & Fabricators – Mehdi Barkhordar, Managing Director, PAMP

Session 3: Precious Metals Investment

Chairman – James Cross, Swiss Gold DMCC

Macro Outlook for the World Economy and Currencies David McWilliams, Economist

The ETF Market – Stephen Mueller, Executive Director, Bank Julius Baer & Co. Ltd

Thoughts on Gold's Place in a Portfolio – Larry Hatheway, UBS

Session 4: PGMs: Looking Forward

Chairman – Edel Tully, Research Analyst, Mitsui Global Precious Metals

The Auto Catalyst Market – The Next Decade, TBA

Chinese Platinum Market – Phillip Klapwijk, Executive Chairman, GFMS

PGMs – The Investor Arena

Michael Sheehen, Portfolio Manager, Red Kite Capital Management LLP

Day Two – Tuesday, 3 November

Session 5: Silver

Chairman – Michael DiRienzo, Executive Director, Silver Institute

Prospects for Silver Supply & Demand – Jessica Cross, CEO, Virtual Metals

London's Role in the Silver Market – James Steel, Precious Metals Analyst, HSBC

Mining in Peru – Roque Benavides, Buenaventura, Silver

Session 6: The Future of the London Precious Metals Market

Chairman – Stephen Branton-Speak, Goldman Sachs

Panel: Phil Clewes-Garner, LPPM Chairman

Raymond Key, Managing Director, Deutsche Bank

Kamal Naqvi, Director, Credit Suisse

Session 7: Delegate Feedback & Closing Session

Chairman – Stewart Murray, Chief Executive, LBMA

Conference Summary – John Reade, Metals Strategist, UBS Investment Bank

Prizes Presentation – Best Speaker and Feedback Session Participant. ■

LBMA Certified Reference Materials

Gold Project Final Update

By Stewart Murray, Chief Executive, LBMA

The LBMA Gold Certified Reference Materials (CRMs) are now being distributed to the purchasers. Full details of the materials are shown in the Analysis Certificate. Here, Stewart Murray (himself a lapsed metallurgist) tells the story of the project's origins, development and successful conclusion.

The real start of the project was in mid-2006 when Dr Mike Hinds suggested that he contribute a paper on the manufacture of silver reference materials for the LBMA's Assaying Seminar in March 2007. This described a collaborative venture between the Royal Canadian Mint and the Rand Refinery to produce solid sample silver reference materials (a venture which had in turn originated at the LBMA's 2005 Assaying Seminar). Dr Hinds also suggested that the LBMA should survey the refiners on the Good Delivery List about their possible interest in an extension of this work. This survey was carried out in early 2007, allowing the scope of a possible project to be outlined. A more detailed survey was initiated in May 2007 which demonstrated a significant level of support for the idea of a cooperative venture to produce and sell solid Certified Reference Materials (CRMs) in high-purity gold and silver. The survey also asked Good Delivery refiners to indicate whether they would be interested in participating in the manufacture or assaying of the materials or serving on the Steering Committee to oversee it.

By mid-2007, the Steering Committee had been established under the Chairmanship of Mike Hinds (the members of the Committee as well as the selected assay laboratories are shown in the Certificate).

The rest of 2007 was devoted to a whole range of issues, including the specification for the materials and a budget for presentation to the LBMA. The budget hurdle was a particularly tough one to overcome, in that the LBMA was concerned about its financial exposure if the project were to fail (whether on technical grounds or from want of purchasers). But Mike Hinds was able to persuade the LBMA Chairman and the Chairman of the Physical Committee that with certain safeguards, the financial exposure of the LBMA would be at an acceptable level. The Management Committee duly endorsed the recommendation that the project should proceed. The next crucial task was the selection of the manufacturers, which took place at the first meeting of the Steering Committee in late January, 2008. Tanaka of Japan and Krastsvetmet of Russia were selected to manufacture the gold and silver materials respectively. During visits by Drs Hinds and Murray to these companies' manufacturing facilities in Japan and Krasnoyarsk, the technical procedures for the manufacture, homogeneity testing and final analysis were agreed. The goal was to produce two reference materials containing different levels of approximately 20 impurity elements (see Certificate).

Manufactoring Challenges

Undoubtedly, the major challenges for the manufacturers were firstly, to ensure that the selected elements were present at the desired concentrations in the two materials and secondly, that the materials were homogeneous. Combining these requirements is difficult. Homogeneity requires that the melt should be maintained (with stirring, in a vacuum furnace) for an extended period. But this can lead to losses of the more volatile elements. Fortunately Tanaka have enormous experience in this area, in that gold bonding wire manufacture requires precise doping of high-purity gold with small quantities of alloying elements. The next challenge was to ensure fast cooling in the mould. Without this, segregation of some of the elements can occur as the metal solidifies. Tanaka used a narrow book-type (vertical) graphite mould to ensure rapid cooling. The complete process used by Tanaka to manufacture and assaying of the materials was described in a presentation to the 2009 LBMA Assaying and Refining Seminar – see http://www.lbma.org.uk/events/assay2009.

Analysis

For the homogeneity test 15 units were selected from representative areas of the ingot and analysed at various depths (surface, centre and halfway between) by Tanaka and the Rand Refinery. The results were examined by means of ANOVA (Analysis of Variance) software, which demonstrated that the elements were distributed homogeneously. Shavings were then analysed by 10 laboratories whose results (using code numbers to maintain anonymity) were sent to the Steering Committee. The final step was the elimination of any results that were considered to be outliers. The remaining results were used to calculate the means and uncertainties shown in the Certificate.

Format of the Materials

The LBMA gold CRMs consist of a set of two rectangular blocks – AuRM1 and AuRM2 – weighing approximately 51 grams and containing different levels of 22 elements.

Ordering LBMA Gold CRMs

The cost for these materials is in two parts: firstly, a fixed cost and a secondly, a variable cost based on the gold content and the current gold price together with the cost of transport.

Fixed cost per set (one unit of AuRM1 plus one unit of AuRM2) LBMA Good Delivery Refiners, Members and Associates: USD3,750*

Other purchasers: USD4,450*

*Additional cost for a set materials in the form of shavings: USD600

Thanks

The LBMA would like to thank all those involved in this project, paticularly, Dr Mike Hinds, the staff of Tanaka and the members of the Steering Committee. ■

Gold Reference Materials

The text of the Certificate of Analysis that accompanies the materials is shown below

General Information
The London Bullion Market Association (LBMA) promotes quality and good practice in the area of gold and silver refining and trade. The production and sale of the Reference Materials referred to herein represent part of this effort. These Reference Materials were produced by Tanaka Kikinzoku Kogyo K.K. on behalf of the LBMA, under the guidance of a Steering Committee. The composition reflects the needs expressed by LBMA accredited refiners.

The following table lists the elements for which certified values have been established with expanded uncertainty ($U_{CRM} = ku_c$, where U_c is the combined standard uncertainty calculated according to the ISO Guide [1] and k=2 is the coverage factor).

Element Concentrations, mg/kg

	AuRM1	AuRM2
Ag	20.0 ± 0.8	99.6 ± 5.6
Al	9.6 ± 0.8	28.3 ± 1.8
As	14.5 ± 1.0	47.1 ± 2.8
Bi	30.4 ± 1.5	9.7 ± 0.8
Ca	9.6 ± 1.1	28.0 ± 2.6
Cr	9.4 ± 0.6	27.7 ± 2.2
Cu	13.5 ± 2.7	31.6 ± 2.4
Fe	10.6 ± 1.1	30.1 ± 2.2
Mg	30.1 ± 1.9	9.9 ± 0.9
Mn	9.7 ± 0.4	28.2 ± 1.5
Ni	9.8 ± 1.0	29.2 ± 2.6
Pb	9.8 ± 1.8	28.9 ± 2.4
Pd	9.7 ± 0.6	29.2 ± 1.3
Pt	10.3 ± 1.1	30.2 ± 2.1
Rh	7.3 ± 0.6	39.6 ± 2.4
Sb	35.7 ± 1.6	11.3 ± 1.6
Se	11.8 ± 2.9	37.4 ± 2.8
Si	9.4 ± 1.6	28.0 ± 3.8
Sn	9.7 ± 1.1	29.4 ± 1.8
Te	40.7 ± 2.6	12.0 ± 3.2
Ti	10.5 ± 0.9	31.6 ± 1.3
Zn	10.3 ± 1.2	31.4 ± 2.3

Manufacture of the Reference Materials
These Reference Materials were produced by melting high-purity gold with master alloys in order to include trace impurities of a number of elements in the 2-100 mg/kg range. The target level of each element was agreed upon within the Steering Committee. After casting in a vertical graphite mould designed for rapid cooling, the ingot was rolled to a thickness of 6mm. The surfaces at the top and bottom faces were removed using a milling machine. The rolled ingot was cut into individual pieces with the approximate dimensions of 21x21x6 mm.

Homogeneity
Samples were cut from the rolled ingot according to a grid pattern. Fifteen pieces were selected systematically from the grid pattern, which encompassed three samples from each of five evenly spaced rows of cut pieces. The samples were chosen to cover the edges and the middle of the rolled ingot. Samples were analysed at the top, bottom, and at a 3mm depth for each of the elements in a random order. Concentration data were obtained by two different laboratories: using spark ablation ICP-OES and using spark optical emission spectrometry. Results from these tests were evaluated using ANOVA and found to be satisfactory.

Quantitative analysis of trace elements
Shavings were obtained by milling sample pieces and collecting the shavings. The shavings were acid washed in 50% HCl, rinsed several times with distilled deionised water, and then dried in a clean hood. Portions of the shavings (25g) of each Reference Material were distributed to 10 laboratories for analysis. Each participant laboratory was requested to perform its trace elements determination on at least five sub samples. All the laboratories determined the trace element concentrations by inductively coupled plasma optical emission spectrometry of the solutions prepared from the Reference Materials.

Instructions for the storage, handling and correct use of Reference Materials
Keep the materials in a box to avoid exposure to industrial environment. Metallic dusts or vapour may deposit on the surface. In case of doubt, clean with ethanol, then high-purity water. If not sufficient, it is recommended that possible surface contamination be removed by placing the sample in hot 18% HCl for approximately 10 minutes, followed by rinsing with high purity water. Once impacts of a spark spectrometer cover the surface, remove about 50 micrometers by milling, or by polishing.

Hazardous information
There are no hazards associated with this material.

Intended Use
These Reference Materials are intended to be used for the validation of analytical methods for trace metallic impurities in gold, such as Spark optical emission spectrometry. They can also be used in the calibration of analytical instruments.

Traceability
The results in this certificate are traceable to the SI through gravimetrically prepared standards of established purity and international measurement intercomparisons.

Date of certification: 07.07.2009
Expiration date of the certificate: 31.12.2019. These gold Reference Materials and their certified property values are expected to remain unchanged for more than 50 years, but new analytical techniques or instruments with better characteristics of accuracy and precision are likely to appear as laboratory equipment is renewed. Accordingly, analyses may be performed again by some of the laboratories.

Acknowledgements
The following laboratories participated in the analysis of these Reference Materials: AGR Matthey, Australia; Aurubis, Germany; Cendres+Métaux, Switzerland; Great Wall Gold & Silver Refinery, China; Metalor Technologies, Switzerland; Rand Refinery, South Africa; Royal Canadian Mint, Canada; Tanaka Kikinzoku Kogyo, Japan; Umicore Precious Metals Refining, Belgium. For the LBMA: Stewart Murray, Chief Executive, LBMA. Steering Committee members: Great Wall Gold and Silver Refinery, China, Chen Jie; Metalor Technologies, Switzerland, Dr. Paul Bagnoud and Serge Gambs; Rand Refinery Ltd., South Africa, Neil Harby and Madeleine Theron; Royal Canadian Mint, Canada, Dr. Michael Hinds (Chair); Umicore, Belgium, Dr. Dirk Hofmans; Tanaka Kikinzoku Kogyo, Japan, Nobuyasu Ezawa and Hitoshi Kosai.
References, [1] Guide to Expression of Uncertainty in Measurement, ISBN 92-67-10188-9, 1st ed. ISO, Geneva, Switzerland (1993).

Disclaimer
The LBMA, the Steering Committee, the Manufacturers and the laboratories involved in the chemical analysis of the Reference Materials have used their best endeavours to ensure that the Reference Materials are homogeneous in respect of the contained elements and that their concentrations are accurately determined. However, all assayers will recognise that there can be no absolute guarantees in relation to these parameters. For example, it cannot be ruled out totally that the Reference Materials may contain extraneous inclusions (though such foreign bodies would be readily detected by the using laboratory). In addition, minor deviations from complete homogeneity that are not detected by the homogeneity testing are conceivable. ■

A Day in the Life of a Trader

By Stephen Pender, Chief Dealer, INTL Commodities

In the first of a new series looking at the jobs that make the market tick; the Alchemist looks at a 'Day in the Life of a Trader' through the eyes of Stephen Pender at INTL Commodities, located in London.

1st July 2009

07.15

Gold $929.00 Silver $13.61 Euro $1.4041 Oil $70.20 Copper $5040.00

Arrive in the office with my breakfast. The first thing I do is check out the charts for highs, lows and to see if any key levels or trend lines have been broken. Yesterday was one of the most active days we have had for a while, but there is little to report from the overnight session with both gold and silver climbing steadily.

Following our morning meeting, I start contacting customers to advise them of the overnight ranges and to discuss our views on the day ahead. We usually expect to see money allocated into commodities on the first day of each month, but after yesterday's sharp sell off and weak close, we should also see some technical fund selling. This could make my morning a bit of a battle.

Away from the market we have a few key figures due from the US today. I expect that these will be a catalyst for the market as people start to build their positions for the new month.

08.00

Gold $932.50 Silver $13.67 Euro $1.4063 Oil $70.53 Copper $5060.0

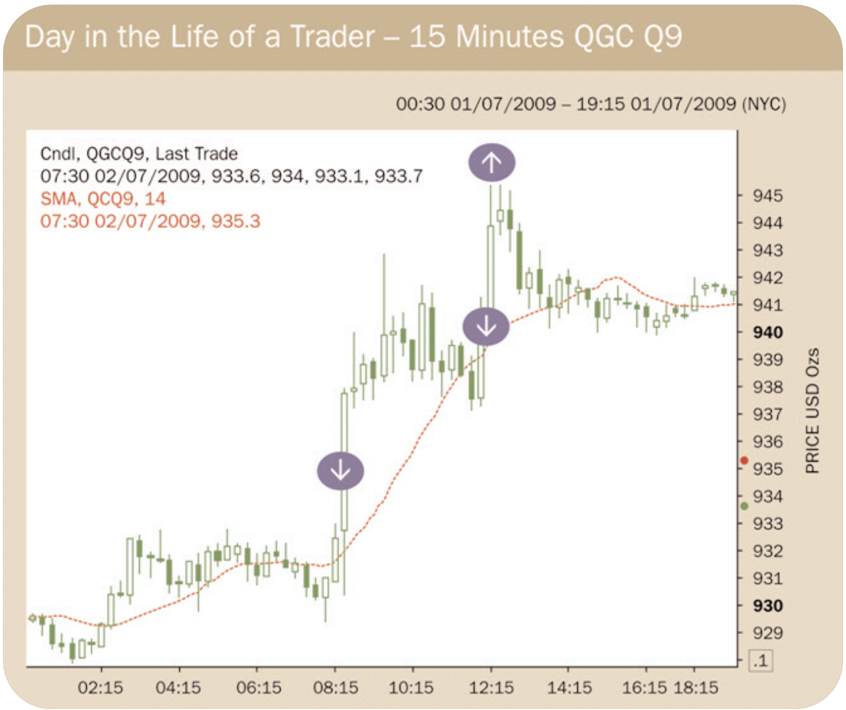
The official start of my trading day. I take control of the orders and responsibility for price-making within my group. Precious metals are already moving higher, which is enticing customers in the Far East to take profit on their day trades.

Position – Flat

10.30

Gold $931.50 Silver $13.69 Euro $1.4062 Oil $71.19 Copper $5076.00

Nothing to report so far. Tomorrow, I must remember to bring a good book, something like *War and Peace* should get me through! Overall I am expecting gold to test $1,000 again this quarter so I have spent my morning looking for a way to reflect this through options, which have moved significantly lower recently. 3m call spreads look interesting, with yesterday's pullback offering better strikes. I decide to wait to see how low gold can go before taking things further.



Position – Flat

12.00

Gold $931.40 Silver $13.63 Euro $1.4062 Oil $71.38 Copper $5070.00

Precious metals have come to a standstill. Whilst most of the other major commodities have continued to tick higher, supporting the start of month allocation view, this has not yet had an effect on the gold market.

At least I have lunch to look forward to. Well, maybe not, it's a tuna sandwich at my desk – not quite the high-flying city life you read about!

Before NY opens, I decide to take a short position looking for gold to give back the $5 overnight gains.

Position – Short

13.30

Gold $938.00 Silver $13.77 Euro $1.4116 Oil $71.32 Copper $5122.0

Action at last! The APT number is released, which is weaker than expected and, as a result, gold turned bid rallying to $10 very quickly. I had covered half of my short before the number was released but I have to stop out of the rest on this move. This is frustrating, but taking a position through figures is always a lottery.

I am receiving plenty of customer calls asking what is behind the move, although it seems, for now at least, that customers are sitting on the sidelines.

Position – Flat

15:00

Gold $938.35 Silver $13.70 Euro $1.4146 Oil $71.64 Copper $5125.0

The fix is relatively quick which is not always the case during the afternoon session as there is a tendency to try (usually unsuccessfully) and play the fix off against the Comex, making it a long drawn-out affair. Gold had tested as high as $943.00 but has now settled into a $4 range below $940.00. The ISM figures are published and are better than expected, providing some positive news for the US dollar at last.

I have been seeing steady selling and I decide to join the bandwagon hoping for better luck this time.

Position – Short

16:58

01 Jul 09 REUTERS-CHINA HAS ASKED FOR G8 ITALY SUMMIT TO DISCUSS ISSUE OF NEW GLOBAL RESERVE CURRENCY-G8 SOURCES

Gold $938.30 Silver $13.82 Euro 1.4188 Oil $69.68 Copper $5135.00

Stopping out again! I scramble to cover my short, fortunately I have some resting orders that I use to get long. This headline sends gold $10 higher to $947.00, and just like in the movies I manage to recover my day's losses and come out with a small profit.

Position – Flat

17:30

Gold $944.60 Silver $13.94 Euro 1.4180 Oil $69.40 Copper $5111.00

The market has pulled back from the highs but still remains bid. After my lucky escape earlier, I decide to call it a day.

Non-Farm Payrolls tomorrow – it seems that there is every chance of the 4 July fireworks starting early this year!

Time to head to the Tube, which has been recorded at a sizzling 35°c today. I decide to heed Transport for London's advice and keep hydrated for my journey…

See you at the bar in 5…

If you are interested in taking part in the "Day in the Life of…" series, please contact: Alchemist@lbma.org.uk

Stephen Pender

joined INTL Commodities Inc on 1 June 2009 as Chief Dealer for Precious Metals.

He previously worked at Fortis Bank S.A/N.V, where he covered market-making in both precious metals and base metal derivatives, and before that at JPMorgan as a precious metals spot dealer. Stephen is on the LBMA Public Affairs Committee.

LBMA NEWS

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

Britannia Refined Metals was admitted as an ordinary Member with effect from 1 June, 2009.

UBS Ltd, an Affiliate of UBS AG, was admitted as an Affiliate Member with effect from 1 July, 2009.

Investec Bank has tendered its resignation as an Ordinary Member with effect from 31 December, 2009.

Associates

Republic Metals Corporation of the USA was admitted as an Associate with effect from 1st July, 2009.

GOOD DELIVERY LIST

Silver

The refinery of Guangxi Chengyuan Mining and Smelting Ltd of China was admitted to the Silver List on 21 July, 2009.

AGM

The Annual General Meeting of the LBMA took place on 11 June, the last official function of the outgoing Chairman, Jeremy Charles of HSBC. As well as the normal statutory business of approving the accounts and reappointing the auditors, the AGM elected the following members of the Management Committee:

- Kevin Crisp, Mitsubishi Corporation (UK) plc (Chairman)
- Stephen Branton-Speak, Goldman Sachs International (Vice Chairman)
- Philip Aubertin, UBS AG
- David Gornall, Natixis Commodity Markets Ltd
- Raymond Key, Deutsche Bank AG
- Steven Lowe, Bank of Nova Scotia – ScotiaMocatta
- Gerhard Schubert, INTL Commodities Inc
- Martyn Whitehead, Barclays Bank Plc

In his report for the past year, the outgoing Chairman, Jeremy Charles of HSBC, commented on the developments he had witnessed at the LBMA; not only during his time as Chairman, but spanning his 12-year involvement with the Association. A copy of his speech can be found on the LBMA website at:www.lbma.org.uk/docs/speeches/AGM2009_Charles_200906.pdf

Speaking immediately after the meeting, Kevin Crisp paid tribute to Jeremy's leadership of the Association during the past three years: "Jeremy has always been a tremendous supporter of everything that the LBMA stands for and has done much to spread its influence and enhance its status in the global market for bullion. During his chairmanship, the LBMA has faced both challenges and opportunities with equal professionalism. I look forward to building on this success with the new Management Committee and our Executive team. I am very conscious of the fact that this is the first time the LBMA has chosen a representative of a non-Market Maker as its Chairman, something that would be a daunting prospect were it not for the experience and market knowledge embodied in our new Vice Chairman and every member of the new Committee."

COMMITTEES

Management

The Committee met in May to prepare for the AGM and also held its first meeting after the AGM in late June.

The Committee reviewed the progress by various institutions towards setting up systems to allow forward transactions to be cleared through a clearing house and, noting the great interest in this subject amongst the Membership, decided that a further seminar should be held, along similar lines to the one held in January this year. This will allow these institutions to give an update to interested Members. The seminar will take place on the afternoon of Tuesday 3, November in Edinburgh immediately following the end of the LBMA's Precious Metals Conference.

On the subject of REACH, the Committee reviewed the discussions that took place at the plenary meeting of the Precious Metals Consortium in Lugano on 19 June. See the sidebar below.

The Committee noted a paper that had been circulated by ISDA concerning forthcoming changes in legislation that could impact on the way that ISDA documentation is used in the bullion market. A copy of this document was circulated to all LBMA Member and Associate contacts in late June.

Physical

The Physical Committee met in early May, June and July.

The Committee's long-running project to find an acceptable electronic alternative to the weighing of gold bars on beam balances has almost reached its conclusion. A prototype scale has been extensively tested by two of the London vaults and found to have the necessary accuracy and durability for vault purposes. The scale comes with software that replicates the London weighing system (which can be found in the Good Delivery rules on the LBMA website). In the coming months, other vaults will be able to try the new scale for themselves and the manufacturers will apply for type approval. The next edition of the *Alchemist* will have a comprehensive review giving details of the trials that have taken place and information about the availability of the new scale.

In addition to approving the listing of the silver refinery of Guanxi Chengyuan as noted above, the Physical Committee is monitoring the processing of a number of other refineries that wish to be listed in London. Particularly for silver, the reason for some refiners wishing to list in London is to allow their bars to be sold to investors. Underlying this is the fact that the industrial market for silver grain has weakened considerably due to the recessionary tendency in many countries.

Correct bar marking has always been an important part of the Good Delivery system. The LBMA was therefore concerned recently when a batch of silver bars with very inadequate markings reached London. Apparently, the bars had been produced with the intention that they would be used in an industrial process by one of the refiner's usual customers. However, they had instead ended up in London, no doubt reflecting the depressed state of fabrication demand. The bars had been marked only

Committee Vacancies

There are currently vacancies on the Public Affairs Committee and the Membership Committee. Anyone interested in applying should send an email to the Chief Executive with a brief statement of their bullion market experience.

superficially and although otherwise complying with the Good Delivery specifications, they were therefore totally unacceptable. In order to clarify the situation, the LBMA has modified the Good Delivery rules to make it clear that if bars are produced in Good Delivery sizes but are not intended for the London market, they should be marked accordingly e.g. with "non-LGD".

The Reference Materials Project for gold has reached its final stage, with the distribution of the materials to the purchasers (mostly members of the Good Delivery List) that ordered them in advance. See the article on page 11 for details. These materials will make a substantial contribution to increasing the accuracy of analytical methods used for determining the gold content of high-purity gold.

The LBMA is greatly indebted to the manufacturers of the Materials, Tanaka Kikinzoku Kogyo, as well as to the members of the Project Steering Committee and in particular, its Chairman, Dr Mike Hinds of the Royal Canadian Mint, for the huge effort involved in bringing this project to fruition.

The LBMA has a stock of materials that can be purchased by members and non-members. The silver project has made progress recently, with the two ingots having been cast, rolled into strip and then cut into units which were then subjected to a full homogeneity analysis.

The data from this analysis is currently being examined by the Project Steering Committee to ensure that the materials meet the requirements for homogeneity. As in the case of the gold project, the units chosen for analysis will also be analysed by a second laboratory.

Public Affairs

Following his election as Chairman of the LBMA, Kevin Crisp stepped down as PAC Chairman, though he will remain on the Committee. The new Chair of the Committee is Dr. Edel Tully of Mitsui who chaired her first meeting of the Committee on 14 July. Another change on the Committee is the resignation of David Holmes following his new appointment at Commerzbank (see Market Moves).

The PAC has met in May, June and July, the busiest period for the Committee given that the programme and registration form for the Annual Conference was to be issued in the final week of July. See the article on page 10.

The LBMA is delighted that the two cocktail receptions during the conference will be sponsored by the World Gold Council (on 1 November) and the Silver Institute (on 2 November).

Membership

The Committee met in June to review progress with a number of applications, including those subsequently approved by the Management Committee as noted above. The Committee also noted that the Associate Review process was often subject to considerable delays and recommended that Associates and their sponsors should be given a definite and more limited time to respond to the reviews initiated by the Executive.

Finance

The Committee met in May to review a number of aspects of the LBMA's finances, including the presentation of the 2008 Accounts at the Annual General Meeting and the aged debtor situation. ■

REACH

The LBMA's REACH Sub-Committee met in June to discuss how the LBMA can provide any further necessary assistance to its Members who have preregistered for REACH in relation to their imports or production of gold and silver.

The Committee agreed that a statement should be prepared on behalf of the LBMA and the Precious Metals Consortium for submission to the UK Competent Authority (the Health and Safety Executive REACH helpdesk). The statement will stress the market's view that large gold bars imported as investments should be outwith the scope of REACH and therefore not included in the REACH tonnage declarations at the time of registration.

Preparation of this statement is now underway and it is hoped to be able to present it to the Competent Authority in early September. ■

London Precious Metals Clearing Limited has announced that the cut-off time for the acceptance of transfer instructions on Christmas Eve, Thursday 24 December, and New Year's Eve Thursday 31 December, 2009, will be 14:00 G.M.T.

The London Gold Market Fixing Limited has announced that there will be no afternoon gold fixings on Christmas Eve, Thursday 24 December, and New Year's Eve Thursday 31 December, 2009.

Obituary Peter Häsler

by Dr Theo Gautschi

Management and employees of Cendres+Métaux have the painful duty to announce the death of our highly esteemed CEO Peter Häsler. After a severe heart attack and a short stay in hospital, he left in full activity, much too early – a few days before his 54th birthday – and leaves a tremendous emptiness.

The clear goals and visions of Peter Häsler, as well as his exceptional ability to integrate, shaped the company.

Under his leadership, the Swiss company Cendres+Métaux, doubled its business activities within a few years. The receipt of the Entrepreneur Award of the Swiss Midland Economic Espace and the acquisition of two companies along the value-adding chain, are just the most recent highlights in Peter's career.

His motto "cool head, warm heart and working hands" was not just a saying – he exemplified it through his own life. With Peter, we did not only lose a successful CEO, but also a friend and father to everybody in our company. His engagement, his amiability, his affability and his helpfulness will remain in our hearts forever. ■

A New Committee and a New Chairman

Editorial Comment by Kevin Crisp, LBMA Chairman

It is a great pleasure to be writing this Editorial for the Alchemist and to have been given an early opportunity to express some initial thoughts as the incoming Chairman of your Association.

Although I have served previously as Vice Chairman, it is a great honour to be elected as Chairman, perhaps even more so in that I am the first to hold this position from a non-Market Making member of the LBMA. It's something that has been mentioned to me by many and I see it as perhaps another example of the changes underway in the bullion market.

First of all though, I must offer thanks on behalf of the entire membership to your outgoing Chairman, Jeremy Charles of HSBC. I can say from first-hand experience that throughout his Chairmanship, over a period of three tumultuous years in the market, Jeremy has always had the best interests of this Association and its membership at heart. He has shown a steady hand in guiding the LBMA and devoted a great deal of his time to the Association during some very testing times. If you haven't read Jeremy's final report as Chairman, presented to this year's AGM on 11 June, I encourage you to do so. It is available on the LBMA's website.

Of course, no Chairman works alone and Jeremy was supported very ably by our Executive under the management of Stewart Murray and by an active Management Committee. I am very confident that the new Management Committee will be equally active and very vocal in their contribution to discussions, with representatives from across the market, each of whom brings immense experience and knowledge to the table. Each of them in standing for the Management Committee is demonstrating a willingness to represent the wider interests of the bullion market.

We held our first Management Committee meeting on 24 June and it was definitely a case of hitting the ground running in terms of issues to be addressed. Of course, we continue to benefit from Stewart's tremendous knowledge and experience, supported by Ruth Crowell and the rest of the Executive. The LBMA has to address a very wide range of day-to-day issues while, at the same time, keeping the bigger picture in mind.

While the nature of bullion trading is undergoing dramatic change, there are two constants underlying the global bullion market irrespective of the platform, namely the key pillars of Good Delivery and the Clearing System. This is why the LBMA has in recent years paid so much attention to issues such as Proactive Monitoring and Reference Materials, and why it has responded when issues such as REACH have presented challenges to the smooth operation of the market. While I perceive my role as Chairman as one of developing consensus, at the top of my personal list of priorities is to continue and, where possible, improve the level of communication between the LBMA's "Organisation" and its membership and with the wider marketplace too.

As Jeremy and his predecessors have commented over the years, the bullion market continues to become more international with each passing year, as exemplified by the emergence of many new Exchanges around the world. To some extent, the process of internationalisation has accelerated of late as the impact of the global financial crisis has contributed to the renaissance in precious metals investment.

We see new market participants applying to join our membership list and refineries wishing to become accredited to the Good Delivery Lists for gold and silver. This means that the Physical and Membership Committees remain very busy handling a wide range of issues: again we have a very committed and talented group of individuals giving their time to ensure that the standards of this Association are maintained and improved. There are a number of important initiatives now coming toward fruition, including the Reference Materials Project and the electronic weighing of gold, which you will be hearing more about in the near future.

Our Finance Committee is charged with oversight of the Association's coffers and while these were dented last year from a combination of events, close attention is being paid to ensure that the finances of the LBMA remain on a sound footing. Of course, the Public Affairs Committee under its new Chair, Edel Tully, is busy working on the upcoming LBMA Precious Metals Conference in Edinburgh at the start of November and is making good progress on the 2010 Conference. We look forward to seeing many of you in Edinburgh.

I would like to emphasise that the Committees and the Executive welcome your comments, ideas and suggestions about the Association.

In conclusion, as we all continue to feel the effects of the economic maelstrom, it is important to remember that the London bullion market is something more than the sum of its parts. The Management Committee will strive to work for the benefit of not just the London market but the wider bullion market, while ensuring that the foundations of the LBMA remain strong. ■

Kevin Crisp, *Deputy General Manager, Metals Division Manager, Precious Metals Department at Mitsubishi Corporation, has been a member of the LBMA's Management Committee since 2007 and became Chairman in June 2009.*
He worked as senior analyst for metals consultancy GFMS, covering the Middle East and Asia, before joining JPMorgan, working as precious metals strategist and later working for Credit Suisse First Boston, Dresdner Kleinwort and Koch Supply and Trading. Crisp joined Mitsubishi Corporation in 2006 and now manages its precious metals department in London. ■

DIARY OF EVENTS

SEPTEMBER

4-6

6th India International Gold Convention 2009
Goa, India
T: +91 80 25276152/53
F: +91 80 25276154
foretell@fbspl.com
www.goldconvention.in

7-11

GeoAnalysis 2009
Johannesburg, South Africa
T: +27 11 463 5085
F: +27 11 463 3265
caro@soafrica.com
www.geoanalysis2009.org.za

21 - 23

Excellence in Mining and Exploration
Sydney, Australia
T: +61 2 9279 2222
F: +61 2 9279 2477
info@resourcefulevents.com
www.resourcefulevents.com

OCTOBER

1-2

Metals, Minerals, Mining and Markets - 3rd Global Capital Conference and Exhibition
London, U.K.
T: +44 (0)20 7248 4444
F: +44 (0)20 7489 0391
lc@londonchamber.co.uk
www.propubs.com/glo-cap

5-7

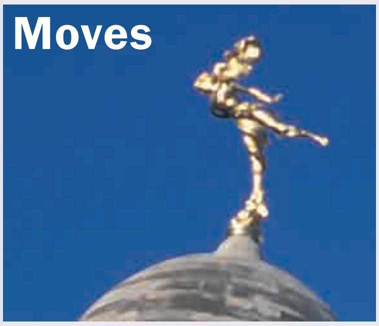
Commodities Week
London, U.K.
T: +44 (0)20 7827 5997
F: +44 (0)20 7242 1508
gina.geldenhuys@terrapinn.com
www.terrapinn.com/2009/ciwuk/

NOVEMBER

1-3

LBMA Precious Metals Conference
Edinburgh, Scotland
T: +44 20 7796 3067
F: +44 20 7796 2112
conference@lbma.org.uk
www.lbma.org.uk

Market Moves



Tony Dobra has joined **Baird & Co.** from Standard Chartered Bank, where he was Director, Global Commodity Derivatives.
He commenced his career at Sharps Pixley Ltd in 1980 and has worked for ScotiaMocatta and Marc Rich Investments.

David Holmes has been appointed Co-Head of Commodity Solutions and Head of Commodity Sales at **Commerzbank** Corporates & Markets. His appointment is a result of Commerzbank's acquisition of Dresdner Bank, and the consolidation of its commodity business into a single unit. The Commodity Solutions Group is responsible for Sales and Structuring and the Bank's Carbon Trade Finance business. Recently, David reluctantly took the decision to resign from the LBMA's Public Affairs Committee, after four years, to dedicate his energies to this new challenge.
Commerzbank's Commodity business, which includes both Precious and Base Metals, Energy and Agricultural products, continues to be headed by David Burns. Adrien Biondi heads the Group's combined Precious Metals business and continues to be based in Luxembourg, reporting to David Burns.

Andy Huxtable has joined **RBS Sempra Metals** with responsibility for management of the Precious Metals Back Office. Andy worked for JP Morgan from 1980 to 2000, beginning in the Forex Back Office and then moving to the Bullion Operations Department in 1982.
After leaving JP Morgan, Andy worked for Mitsui & Co (UK) London as Mid/Back Office Manager, Investec Bank (UK) London as Commodities Back Office Manager, Brinks Ltd London as Precious Metals Sales Manager and Fortis Bank SA/NV as Commodity Derivatives Settlements Manager.

Facing Facts

By Paul Burton
Managing Director
GFMS World Gold Ltd

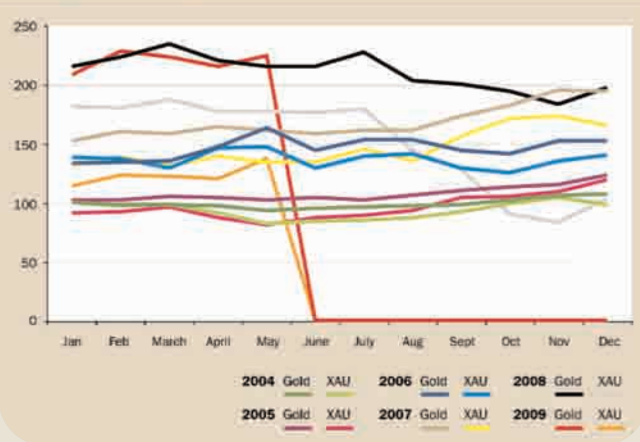
It's been some nine months since the markets witnessed the collapse of Lehman Brothers, probably the one event in the whole banking liquidity crisis that had the most profound impact on the fortunes of, and sentiment within, the gold market. In the immediate aftermath of the dramatic events of late Q3 and early Q4 last year, the world's stock markets were decimated.

All sectors were hit and gold stocks were not excluded. In fact, they were probably hit harder than most sectors, other than banking that is, as they represented an escape route for investors desperate to become liquid in the face of redemptions and cash calls in other areas. The majors, in particular, offered trading volumes and profit opportunities, and were sold off in a frenzy that saw the XAU, the index of major gold companies, plummet.

The following chart shows the XAU plotted alongside the gold price, both indexed to 100 in January 2004. The chart

highlights two features of gold stocks over the last five years. Firstly, it is clear that they have underperformed the gold price over most of the period, so the leverage that gold stocks traditionally carried over the underlying metal price is no longer apparent. Secondly, gold stocks did display some leverage late last year when the markets collapsed but, unfortunately, it was on the downside and stocks fell by a much greater percentage than the gold price itself.

Figure 1: XAU versus the gold price (indexed to Jan 2004)



Cash costs have been rising

One other reason to account for the poor relative performance of the gold producers in a rising price market is the fact that operating costs, on a per ounce basis, rose dramatically for several years up until the end of 2008. The combined effects of increases in the cost of labour (skills shortage as the industry expanded), commodity prices rising steeply (huge demand from China) and power prices in an upward spiral (oil price soaring) led to cash costs rising at a rate of at least 25% per year.

However, since Q3 last year the industry has witnessed something of a pull back in activity as a result of the liquidity crisis and the market downturn, which in conjunction with the dramatic decline in the price of oil, has meant that labour, consumables and power costs have all fallen and reduced the inflation rate in unit costs.

Q1 2009 average industry costs were USD432/oz just 7% up on Q1 2008 and down marginally from Q4 2008, when they averaged USD439/oz.

This performance is impressive given that a number of important Canadian gold companies, who use revenue from by-product metals to offset costs, saw their cash costs rise significantly. When the prices of by-product metals such as silver, copper, lead and zinc were soaring, a number of Canadians were able to report negative cash costs as revenue from base metal sales exceeded gold costs. That has now changed and lower base metal revenue meant that in Q1 2009, Yamana and Agnico-Eagle Mines, two of the largest Canadians, saw cash costs flip from negative to positive, although to be fair, the change also represents a greater gold focus from new mines in their production portfolios. Yamana's costs rose from –USD124/oz to USD379/oz and Agnico-Eagle's from –USD399/oz to USD312/oz.

Exchange rate movements also continue to influence cash costs determined in USD terms. The South African producers, for example, saw their costs fall by 4% in USD terms but in local currency terms, costs rose significantly as the Rand/USD rate weakened by 33%.

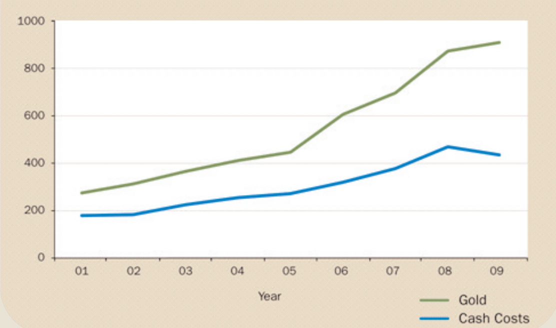
AngloGold Ashanti reported costs up 36%, at R141,582/kg; Gold Fields' costs increased from R122,920/kg to R150,301/kg, and Harmony's cash costs rose 17%.

...but so have margins

But, in fact, while rising costs might have seemed a constraint on profitability, the gold price has outpaced the cost inflation. Thus margins have actually improved since the start of the gold bull run and the recent fall in cash costs will reinforce the trend.

Cash margins averaged USD477/oz in the March quarter (based on the average market spot price). The following graph, which charts the spot gold price and average cash costs, shows how margins have improved over the years by some 402%, up from USD95/oz in 2001.

Figure 2: Cash margins have improved by 402% since 2001



Now, as we near the middle of 2009, gold stocks are reclaiming some of the lost ground after what was a brutal and tough nine months. Investors are perhaps realising that wider margins should mean greater operating profits and thus we may see a return to the days when gold equities guaranteed a performance that eclipsed the metal price. ■

Paul Burton

is Managing Director of GFMS World Gold, based in London.

Paul has over 30 years' experience in various positions within the mining industry. After initially working as a mining engineer, he spent much of his career in mineral economics and minerals marketing, in South Africa, before joining the Mining Journal in 1996, where he became Editor of World Gold Analyst.

In 2008, Paul formed a joint venture with GFMS, under the banner of GFMS World Gold.

Paul graduated from the Camborne School of Mines in 1975 as a mining engineer and subsequently obtained an MSc in Mining Engineering and an MBA, from the University of the Witwatersrand, South Africa. ■

The Alchemist is published quarterly by the LBMA.
For further information please contact Stewart Murray, LBMA Chief Executive
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The *Alchemist*, designed by Ion River and produced by Rionne Preuveneers and Ruth Crowell.

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for **a variety of sophisticated precious metals products**, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP.
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY
REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: + 41 91 695 04 50 e-mail: info@pamp.com
fax: + 41 91 695 04 51 web: www.pamp.com

Alchemist

The London Bullion Market Association ISSUE 5[illegible] [illegible] 200[illegible]

LBMA

In this issue

Fireworks over Edinburgh – Gold prices skyrocket as the bullion market heads to Edinburgh for the 10th Annual LBMA Precious Metals Conference (page 10).

all the metals – all the angles – for all the time

MITSUI GLOBAL PRECIOUS METALS

Sydney • Hong Kong • Tokyo • London • New York

Sydney
Level 46 Gateway
1 Macquarie Place
Sydney
NSW 2000

Tel: 61 2 9256 9442

Hong Kong
Suite 1306
Two Exchange Square
8 Connaught Place
Central, Hong Kong

Tel: 852 2899 2026

Tokyo
2-1 Ohtemachi
1-Chome
Chiyoda-Ku
Tokyo 100

Tel: 81 3 3258 3407

London
4th Floor
St Martins Court
10 Paternoster Row
Lodon EC4M

Tel: 44 20 7489 6761

New York
200 Park Avenue
New York
NY 10166 0130

Tel: 1 212 878 4122

The European Central Bank Gold Agreement Part 3

The Washington Agreement Trilogy

By Matthew Keen, Director, Deutsche Bank

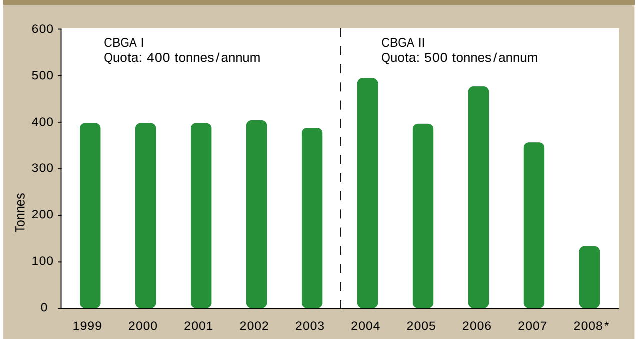
On 7th August 2009, the European Central Bank (ECB) announced the extension of the Central Bank Gold Agreement (CBGA) for another 5 years. The signatories for the CBGA3 were the same as the second agreement and they along with the ECB agreed to cap their combined annual sale at 400 tonnes per annum.

No one will deny that the original European Central Bank Gold Agreement (ECBGA) forged in Washington prior to the IMF meetings in September 1999 was an inspired strategy and of significant importance to just about all sectors of the gold market at the time. Now, ten years on, I suppose the question being asked is what relevance (if any) does ECBGA have in today's climate.

It is a question that has been asked by central banks, bullion dealers, and even the producer community for some time now, and judging by the very late announcement of ECBGA part 3, it may have been touch and go right up to the last minute. Bottom line of course is that on August 7th 2009, a total of 18 European countries have signed up to a third agreement to run until September 2014. However, it has not stopped market participants questioning its relevance, even now.

Looking at the rationale for ECBGA in the first place, the real overriding benefit was the provision of a transparent mechanism for wholesale official transactions to take place. Following 18 years of a bear market, it is fair to say that at the end of the last decade, central banks were making a fair amount of noise about the relevance of their ever depreciating asset. Whilst the actual tonnage of sales in the late 1990s was not overly important, the tarnished reputation of gold was weighing heavy on prices and there was a feeling that central banks were literally queuing up to get their sell orders into the market. As you can see from the chart opposite, the establishment of the agreement did allow for a flood of activity which saw almost 100 million ounces of gold come into the market in the seven years that followed. This rate of selling had not been seen since the mid 1960s when the US liquidated a couple of thousand tonnes.

Annual Central Bank Gold Sales under the Central bank Gold Agreement



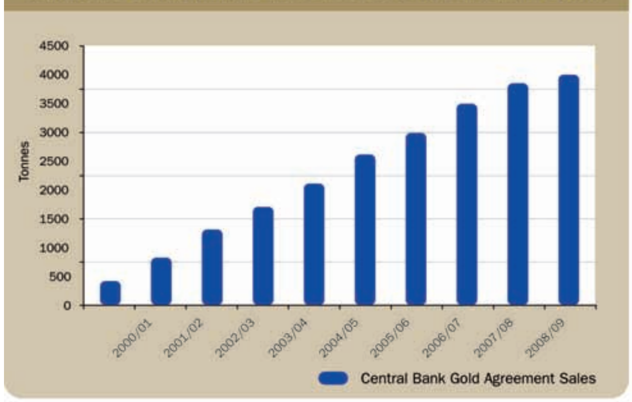
Source: Deutsche Bank, CPM, World Gold Council
* Years run from 26 September to 25 September. 2008 data runs to June 2009

The irony is that the period between 1999 and 2005, which saw more official sector gold sales than at any other time in history, also marked the start of the bull run which is still going strong ten years on. People close to the gold market will know that whilst the ECBGA was a demonstration of "intervention" of a sort, it had a knock-on effect that was to let the industry know that a sea-change was required for the long term health of the market and the valuations of the gold portion of their reserve portfolios. Unfortunately Gordon Brown did not get it and the UK Treasury offered up the majority of its gold at the inception of the agreement. The chain of events that followed the signing of the agreement led to the major producers pledging to cease their hedging activity, a pact which was later "upgraded" to an active hedge reduction policy that is still being followed today.

Like most good trilogies, you have to wait until the final episode before you can piece together some of the strands from earlier episodes. In this case the answer to the question "why was the ECB Gold Agreement dubbed the "Washington Agreement" in the first place"? Well, most people who have been around the market for a couple of decades (or more) will know that every second IMF gathering is held in Washington and that generally, way down the list of agenda items was the subject of gold.

Without wanting to go off on too much of a tangent, the main reason, as far as I am aware, for gold to be on the agenda at every IMF gathering was that the IMF itself wanted to modernise gold's role in monetary policy. And frankly, the only way to get traction on the subject was to have the issue of gold discussed amongst the major gold holding members at one of its annual summits. The IMF had attempted to write gold out of the system on several occasions during the last 50 years, which led to two amendments to its constitution, in 1969 and again in 1978. The first of which introduced the SDR (Special

Cumulative Central Bank sales since Gold Agreement inception



Drawing Right) with 1 SDR being equal to 0.888671 gram of fine gold, which was the par value of the US dollar of 1st July 1944. The second amendment was to make the SDR the principle reserve asset in the international monetary system, paving the way to remove gold as the ultimate reserve asset. So in short, the IMF had been desperate to get the item of gold on the table. Then, in 1999, a core of gold holding countries from Europe actually met in Washington, prior to the official IMF meetings to discuss what could be done about gold's spiralling fortunes and the rest, as they say, is history. The irony is that the IMF was certainly not involved in the pact that was formulated, hence the Washington Agreement was purely a reference to location whereas moving in to ECBGA part 3, we are looking at Washington having a very different role to play.

ECBGA 1 will go down in history as a crucial agreement which lay the foundation for gold to end a 20-year bear market and start a massive bull run which has led to a quadrupling of the price. As I write this article, the gold price is sitting comfortably above $1,000 per ounce. The second agreement was important as a mechanism for transparency, but here we are in Q4 2009 asking the question, "who benefits from ECBGA part 3"?

Well there are no clear winners this time around in the way there were ten years ago. Adding support to the gold price is clearly not a priority for the gold holding central banks around the world today and lease rates, which were also linked to the rationale for trying to fix the market a decade ago, are also rather a non-event. This agreement in fact appears to be rather looser than the first two in as much as lendings are not referenced at all this time around.

The amount of lending by the official sector was flagged as part of the problem with the first agreement, the rationale being that if the official sector stopped providing liquidity to the market, the cost of borrowing could naturally rise to a level that might make forward selling less attractive to the hedgers. Whilst that statement is perfectly logical, the combination of de-hedging and a massive increase in investor long positions have meant that supply far exceeds the demand at the moment and that is not about to change any time soon. For that reason, all restrictions on gold lendings have been removed from ECBGA 3.

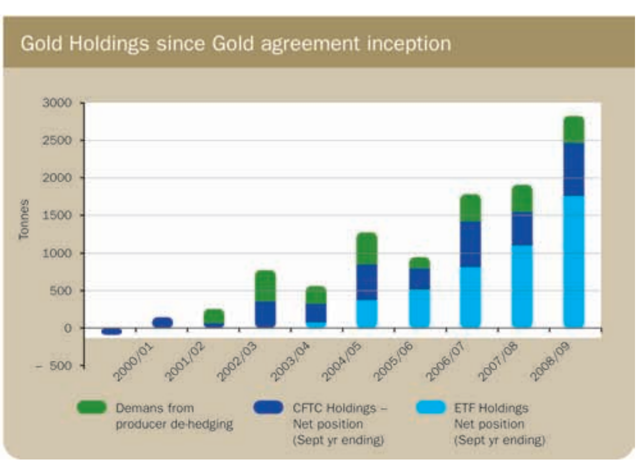
> *ECBGA1 will go down in history as a crucial agreement which lay the foundation for gold to end a 20 year bear market and start a massive bull run which has led to a quadrupling of the price. As I write this article, the gold price is sitting comfortably above $1,000 per ounce. The second agreement was important as a mechanism for transparency, but here we are in Q4 2009 asking the question, "who benefits from ECBGA part 3"?*

Traditionally most central bank activity in gold is limited to deposit or swap business and following the credit crunch of 2007, it is fair to say that this element of a bullion bank's business is completely dead and buried deeper than most South African primary ore, and short of a resurgence of hedging from the majors, it's difficult to see what will change this current oversupply dynamic. For the first time in history, gold deposit rates are actually in negative territory. I do not just mean that the swap versus USD rates imply a negative gold deposit rate, I mean that with insurance costs higher, credit charges higher and vault space becoming a real concern, there is an argument to say that there are now real costs associated with holding a gold position and that cost has to be borne by the client. Traditionally, bullion banks have been happy to pay a nominal fee to have client deposits on their books but not any more!

So back to the crux of what is left in the agreement and who it benefits.

The IMF benefit for starters. In their very thorough presentation to the senate, they needed to deliver not only their rationale, but also their plan for execution and the ECBGA structure does go a long way towards ticking that box. The other thing that we would be wise to remember is the issue of disruptive rhetoric that plagued the market in the late 1990s. Without wanting to name names, gold has had a bit of a role as a political football and it is not unusual for a government and its central bank to have slightly inconsistent strategies when it comes to utilising the asset in question. If that country has signed up to the ECBGA then we can take random headlines that appear on the newswires from time to time with a pinch of salt. The presence of the agreement nips most harebrained ideas in the bud, but even in a case where politicians do throw a strategy out involving their country's gold we can be slightly more relaxed that if it does go further than the concept stage, it will fall within the transparent structure of ECBGA.

Ten years ago, the four biggest gold holding countries in Europe were Germany, France, Switzerland and Italy, collectively holding more than 11,500 tonnes between them, being around a third of all official sector gold. The consequence of any one of those countries unloading gold was simply unthinkable ten years ago and yet, under the auspice of ECBGA part 1 and 2, the Swiss were able to unload almost two-thirds of their gold and the French have sold almost a quarter of their stock without the market falling apart. Germany and Italy are two countries that have adopted a passive stance yet hold a combined total of almost 6,000 tonnes. Any policy shift by either of those two countries could bring us back to the bad old days of the late 1990s. So, in conclusion, it is clear to see that several European countries who were active in the



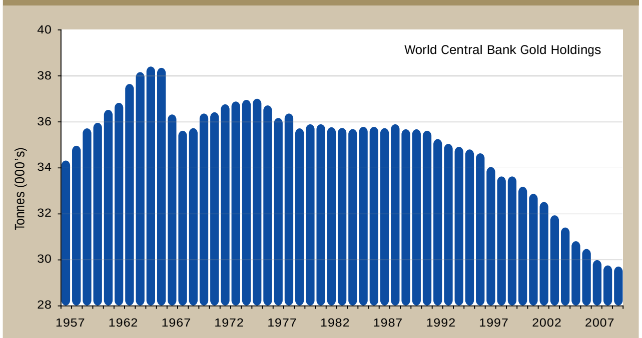
(Gold as a percentage of total reserves)***

Country	Q1 2000	Q1 2009	Tonnages
Germany	33.3	70.2	3,412
France	41.1	74.2	2,452
Italy	46.1	66.9	2,451
Switzerland	43.3	38.0	1,040
Netherlands	45.0	62.0	612
ECB	14.0	23.2	537
Portugal	38.6	90.3	382
Spain	12.2	39.8	282
Austria	19.5	56.0	280
Belgium	18.1	41.3	227
Sweden	9.9	14.2	134
Greece	6.7	92.1	112

Tonnes	Year 1 2004-05	Year 2 2005-06	Year 3 2006-07	Year 4 2007-08	Year 5 2008-09
Eurozone to September 11, 2009	352.2	385.8	352.8	211	136
of which:					
European Central Bank to end July, 2009	47.0	57.0	60.0	72.0	35.5
Austria to end July 09	15.0	13.7	8.7	0.0	0.0
Belgium to end July 09	30.0	0.0	0.0	0.0	0.0
France to end July 09	115.0	134.8	115.1	115	82.5
Germany to end July 09	5.4	5.3	5.1	4.8	4.3
Netherlands to end July 09	55.0	67.5	14.0	19.5	9.0
Portugal to end July 09	54.8	44.9	0.0	0.0	0.0
Spain to end July 09	30.0	62.5	149.3	0.0	0.0
Country not yet known			0.5		4.3
Sweden to September 7, 2009	15.0	10.0	10.0	10.0	13.5
Switzerland to date	130.0	0.0	113.0	137.0	0.0
Total reported or estimated selling	497.2	395.8	475.8	358	149

Source: World Gold Council

The Long Term Decline in Central Bank Gold Holdings



Source: IMF Data (as of 2009)

past have simply reached a point where they do not feel any urgency to sell. After all, since the birth of ECBGA ten years ago, gold will have undoubtedly been the best performer in a reserve portfolio, but it could be argued that so much of the positives that ECBGA brought to the market could be unwound if the agreement was simply mothballed at this point. I think that of all the "agreements" that have been created over the decades, this one is quite an easy one to maintain with most of the member countries happy to.

Looking at the last five years, it is clear to see that several countries who were active in the past have simply reached a point where they don't feel any urgency to sell. After all, since the birth of ECBGA ten years ago, gold will have undoubtedly been the best performer in a reserve portfolio. So, in conclusion, the extension of the ECB Gold Agreement for a third term is helpful to the market as a whole, but on the flip side, it does take away any spontaneity that central banks might have enjoyed in the past. Mind you, giving up the ability to make a "snap decision" is probably something that most central banks will not miss.■

Matthew Keen *started his career at Johnson Matthey Bankers in 1982, moving to Engelhard in 1987 where he started specialising in PGMs. He set up JPMorgan's PGM business in 1991, where he remained until the Chase merger ten years later. He is currently a director at Deutsche Bank with global sales responsibility for Central Banks and the official sector. He also has responsibility for the bank's Platinum Group Metal business and the develpoment of various Rare Metals businesses.*

Gold...

A fully integrated precious metal management company, Rand Refinery is the world's largest single-site refining and smelting complex, with a reputation for quality, reliability and integrity built up over eight decades. Based in Germiston – in Gauteng, South Africa – we are conveniently placed for access to Johannesburg's OR Tambo International Airport.

www.randrefinery.com

We are committed to the highest standards in all aspects of our business:

- LBMA accreditation
- LBMA referee status
- Dubai Metals and Commodities Centre accreditation
- OHSAS18001 (health and safety)
- ISO14001 (environmental)
- ISO9001 (quality)

We offer:

- The latest technology in both refining and smelting
- a knowledgeable team, steeped in the business
- analytical services
- stringent security
- a comprehensive vault, clearing and air forwarding service
- fabrication of a range of value-added products

RAND REFINERY LTD. SOUTH AFRICA

CONTACT DETAILS
Rand Refinery Limited
Tel: +27 (0) 11 418-9000
Fax: +27 (0) 11 388-2792
Email: gold@gold.co.za
PO Box 565 • Germiston 1400 • Gauteng • South Africa

A Day in the Life of a Refiner

By Grant Angwin, General Manager, Johnson Matthey

07:30
There are those that say the start of a day for a refiner is a round of golf! In my case, it is a good cup of tea. Everything for a refinery begins with what comes in the front door. So for the first 30 to 45 minutes, I pore over my PC looking at reports that detail what was delivered yesterday and, as important, what was produced during the past 24 hours.

08:30
It is now time to get another cuppa, return to my computer, and check the Bullion Desk for prices and news on the market. Whilst prices are not so critical to a refiner in his day-to-day business, they are obviously important to our customers – both product and refining. So a brief review of what is happening in London and the world is necessary. Operating out in the Western USA means that we have a seven-hour time difference with the UK, so the next 30 minutes is spent on the phone with our UK head office. Then, it is time to delete all the unwanted emails and respond to the few that actually do require a reply.

09:30
Having cleared out the emails and checked the market, the day starts in earnest with a 30-minute walk around the refinery. This is an ideal time to talk to the guys, and see and hear what is going well, and hear about any issues. It also sets up the day, as much of the next few hours will be spent with various managers.

10:00
Now that I am in the refinery and have cleared the various security obstacles, my next port of call is with our Operations Manager. We spend the next 30 to 45 minutes reviewing intake and output numbers, staffing levels and discussing plans for the remainder of the month. We are getting close to starting our budget process so this meeting runs on and takes the best part of an hour. I leave him feeling slightly dazed after we have discussed headcount and operating costs – he wants more and I want less!

11:00
Next for a visit is our Employee Health & Safety Manager. Our refinery uses the Miller chlorine process to recover gold and various side processes, which use acids and various reactive chemicals. Whilst a refinery uses many chemicals in its processes, the most sensitive is chlorine. We review our chlorine system on a very regular basis – any escape of chlorine is very dangerous. Today, we walk through the whole process from delivery to use. Molten metal is everywhere in a refinery and is another of the biggest safety issues a refinery faces. We discuss ways in which we can reduce employee exposure to these hazards.

12:00
After all these peregrinations around the refinery, it is time for a break. Another cup of tea and a spot of lunch consisting of a marmite sarnie! This is also another opportunity to catch up on the news and read the *FT*.

12:30
Now, it is time to turn to the two remaining functions. First up is the financial area. A refinery may handle many millions of ounces of gold, but at the end of the day, it is the actual ounces that count or have to be counted. We spend some time discussing where the metal is within the various processes and ensuring that it is in the right part of the refinery. The refining business is somewhat different to most businesses in that we have to concern ourselves with money and metal, which is also money but treated differently in terms of accounting. In effect, our financial area has to do its job twice – count the money and then the metal. Having left our financial chap in the same dazed state as the operational one, it is time again to review some of the reports that indicate how the business is performing.

14:30
Last but not least on daily review is our Business Development area. We spend some time discussing what the recent rally in prices means for our business today and in the future; unfortunately, this time we don't come up with any conclusions!

15:30
The UK and the East coast of the US have closed for the day, and the remainder of the day is spent catching up on emails. One final thing that has to be done is to return to the refinery and review the developments with our sustainability programme on wood recycling.

16:30
By now, the steady stream of lorries arriving on site has all but dried up. It is amazing to think that so much of it starts in the Nevada desert with a mine moving over 7,000 tons of ore, and after we have done our bit, that 7,000 tons ends up producing one 400 oz (12.5 kilos) London Good Delivery gold bar! Tomorrow will be another day, and it will be a very different one, but for now, we can go to the golf course! ■

Grant Angwin *has worked for Johnson Matthey for over 25 years. The first 20 years he was based in the UK and held various positions within the refining business prior to being appointed Head of Sales at the Royston refinery. Five years ago, he relocated to Salt Lake City as Sales and Marketing Director and shortly after that he took the position of General Manager.*

Thanks to our clients UBS has again been ranked No. 1 for precious metals in the Risk Magazine annual survey: 1st overall and 1st in six categories.

Active in the physical and non-physical markets for almost a century, our dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

- Gold, silver, platinum and palladium
- 24h global service from hubs in Switzerland, Singapore, the US and the UK
- Physical precious metals from our Swiss vaults
- Structured products and tailor-made hedging solutions
- Full range of OTC derivatives
- Coins – trading, handling and storage

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich:	+41-44-239 4111	**Singapore:***	+65-6495 8474
Lugano:	+41-91-801 9990	**Stamford:***	+1-203-719 1178
Geneva:	+41-22-389 5335	**London:***	+44-207-567 6758

*non physical only

Investment
Bank

You & Us

UBS

© UBS 2009. All rights reserved.

Electronic Weighing of Gold in London

By Douglas Beadle, Consultant, LBMA

As regular readers of the *Alchemist* will be aware, the Physical Committee has, for several years now, been looking at the possibility of permitting gold to be weighed on electronic scales in the London market, in addition to the traditional beam balance weighing of gold.

The problem has been finding a scale that weighs to the exacting standards of the London market, with repeatability being a major problem with scales that were investigated previously. During the past year, the London vaults have been conducting extensive trials of a prototype scale produced by Sartorius and the results have proved extremely encouraging. Some further testing by the vaults in London still needs to be undertaken, but on the results obtained thus far, it seems likely that the Sartorius scale will satisfy the requirements of the London market. Meanwhile, Sartorius is in the process of seeking Type Approval for the scale in Germany.

Subject to the successful completion of the further testing and the Type Approval being obtained, it is hoped that within the first half of 2010, the Physical Committee will be in a position to recommend to the LBMA Management Committee that it should approve the weighing of gold on electronic scales in the London market. At that time, the LBMA will make a further announcement setting out its procedural recommendations and the technical specifications that will need to be complied with.■

LBMA Certified Reference Materials

Gold and Silver CRMs Available from the London Bullion Market Association

The London Bullion Market Association (LBMA) promotes quality and good practice in the area of gold and silver refining and trade. The production and sale of Gold and Silver Certified Reference Materials represent part of this effort.

The LBMA Gold Certified Reference Materials (CRMs) were produced by Tanaka Kikinzoku Kogyo K.K. on behalf of the LBMA, are now available for purchase. Silver CRMs, manufactured by Krastsvetment will be available by the end of 2009. The project reflects an international collaboration to meet the requirements of laboratories involved in the analysis of high-purity gold and silver. Figure 1. lists the elements in the gold CRMs for which certified values have been established. The values shown in Figure 1 were calculated on the basis of the analyses carried out by ten laboratories in seven countries. For silver, the list of elements is slightly different from the gold CRMs. Cadmium is included and calcium and titanium are excluded..

Figure 1.

Element Concentrations, mg/kg

	AuRM1	AuRM2
Ag	20.0 ± 0.8	99.6 ± 5.6
Al	9.6 ± 0.8	28.3 ± 1.8
As	14.5 ± 1.0	47.1 ± 2.8
Bi	30.4 ± 1.5	9.7 ± 0.8
Ca	9.6 ± 1.1	28.0 ± 2.6
Cr	9.4 ± 0.6	27.7 ± 2.2
Cu	13.5 ± 2.7	31.6 ± 2.4
Fe	10.6 ± 1.1	30.1 ± 2.2
Mg	30.1 ± 1.9	9.9 ± 0.9
Mn	9.7 ± 0.4	28.2 ± 1.5
Ni	9.8 ± 1.0	29.2 ± 2.6
Pb	9.8 ± 1.8	28.9 ± 2.4
Pd	9.7 ± 0.6	29.2 ± 1.3
Pt	10.3 ± 1.1	30.2 ± 2.1
Rh	7.3 ± 0.6	39.6 ± 2.4
Sb	35.7 ± 1.6	11.3 ± 1.6
Se	11.8 ± 2.9	37.4 ± 2.8
Si	9.4 ± 1.6	28.0 ± 3.8
Sn	9.7 ± 1.1	29.4 ± 1.8
Te	40.7 ± 2.6	12.0 ± 3.2
Ti	10.5 ± 0.9	31.6 ± 1.3
Zn	10.3 ± 1.2	31.4 ± 2.3

Homogeneity

For the gold CRMs, samples were cut from the rolled ingot according to a grid pattern. Fifteen pieces were selected systematically from the grid pattern, which encompassed three samples from each of five evenly spaced rows of cut pieces. The samples were chosen to cover the edges and the middle of the rolled ingot. Samples were analysed at the top, bottom, and at a 3mm depth for each of the elements in a random order. Concentration data were obtained by two different laboratories: using spark ablation ICP-OES and using spark optical emission spectrometry. Results from these tests were evaluated using ANOVA and found to be satisfactory. A similar approach was used for the silver CRMs.

Format of the CRMs

The Gold CRMs consist of a set of two rectangular blocks – 21 x 21 x 6mm and weighing approximately 51 grams each. The silver CRMs are slightly longer (26x26x7mm) and weigh 50g each.

Ordering LBMA Gold CRMs

The cost for these materials is in two parts: firstly, a fixed cost and secondly, a variable part which includes the cost of supply and, in the case of the gold CRMs, the value of the gold content (based on current gold price).

Fixed cost per set (one unit of each RM) LBMA Good Delivery Refiners. USD 3, 750. Other purchasers: USD 4, 450. Further details are available on our website.

The London Market Bullion Association
13-14 Basinghall Street
London EC2V 5BQ
www.lbma.org.uk
Collett.Roberts@lbma.org.uk
T: +44 (0) 20 7796 3067

LBMA

METALS

COMMODITIES \ INTEREST RATES \ EQUITIES \ FX \ ENERGY \ WEATHER

The total metals marketplace.

Trade Metals Products:

- Most extensive and liquid metals futures market in the world, including benchmark COMEX gold and silver contracts
- More than 100 years of proven safety and security with CME Clearing
- Access around the world on CME Globex – the most reliable electronic trading platform
- Mitigation of credit risk by clearing OTC transactions through CME ClearPort
- Availability of both physically delivered and financially settled futures contracts

In today's metals market, more opportunities are available than ever before. CME Group's broad product suite offers the financial safeguards of clearing, plus flexible trading solutions. Together, our precious, base and ferrous products comprise the world's most liquid metals futures market. And now that COMEX and NYMEX are part of CME Group, the world's leading metals marketplace is gaining new strength. Learn more at **www.cmegroup.com/metals**.

CME Group
A CME/Chicago Board of Trade/NYMEX Company

CME Group is a trademark of CME Group Inc. The Globe logo, CME, Chicago Mercantile Exchange and Globex are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange Inc. COMEX is a trademark of Commodity Exchange Inc. These contracts are listed with, and subject to, the rules and regulations of NYMEX and COMEX. Copyright © 2009 CME Group. All rights reserved.

LBMA Conference Preview

By Edel Tully, Chairperson, LBMA Public Affairs Committee

The LBMA Conference has arrived and the time has come for the bullion community to once again make its annual pilgrimage. For 2009, the show takes place in Edinburgh, Scotland. The historic Balmoral Hotel provides the impressive backdrop for this year's event from 1-3 November.

The Loch Ness monster is unlikely to reveal itself in the City of Edinburgh, but ghosts and goblins are liable to be out and about on the 31 October amongst those keen delegates, particularly the London contingent, who travel over the weekend to experience Halloween Scottish style.

The 2009 LBMA Conference was an unwitting victim of global financial circumstances and our initial conference location of Peru was deemed by many market members to be a stretch too far this year. After much consultation and debate, Edinburgh became our home and we are delighted to report that conference delegates have been as supportive of this annual event as in previous years. Due to such strong demand, we were forced to close registration on the 30 September and a waiting list was opened.

Unlike venues for past conferences, Edinburgh is not a dominant location in the precious metals industry map. Accepting that Scotland does not straight away stand out as a likely setting, it may surprise you to learn that the LBMA's flock to Edinburgh will not be the first gold rush the region has experienced. No, that happened back in 1869. As an analyst, I fully appreciate Google's abilities to unearth many interesting and largely unknown pieces of information!

So the summer clothes that would have been packed for Peru should suitably be replaced with umbrellas, raincoats, wellies and, in some cases, a hip flask. Yes, Edinburgh is calling and the LBMA conference once again promises to provide an apt forum for market participants to network and discuss the front-line issues in our market.

The LBMA executive has been busy planning and organising to ensure the 2009 event compares favourably with those of previous years. The Public Affairs Committee is charged with the task of putting together the Conference programme and many man-hours have been invested to ensure a quality line up of topics and speakers.

The World Gold Council-sponsored Welcome Reception will signify the formal start to the 2009 proceedings on the 1 November.

The opening session on Monday marks the first formal address by the Association's new Chairman, Kevin Crisp of Mitsubishi Corporation. The keynote speech this year will be delivered by Paul Mercier of the European Central Bank and will be followed by Michael Cross of the Bank of England in what will no doubt prove to be an intense, but informative kick start to proceedings.

The impact of the financial crisis on the precious metal's industry takes centre stage thereafter and chairing of this session lies in the capable hands of Steve Lowe, Bank of Nova Scotia-Scotia Mocatta. From the producer sector, to jewellery, to refineries and fabricators, the fallout across world markets and its journey into our precious metals world will be analysed and dissected by the chosen speakers from AngloGold Ashanti, the WGC and PAMP.

The topic of the afternoon session – Precious Metals Investment – will no doubt draw a large crowd. With James Cross in the Chair, David McWilliams, an Ireland-based economist with an international perspective, will set the scene for this gathering, with a macroeconomic and financial outlook for world economies and currencies. Stephen Mueller of Bank Julius Baer and Co. Ltd and Larry Hathaway of UBS will focus the lens more closely on the metals market through their respective analyses of the ETF investment vehicles and gold's role as a portfolio diversifier – two topics that have dominated market headlines and commentary over the past year.

Session 4 after lunch on Monday brings the PGM complex under the spotlight. At last year's conference in Kyoto, this session proved to be one of the most popular. Therefore, with Edel Tully (yes, that's your author) in the Chair directing the discussion, the future use of PGMs in the auto market from the view point of Johnson Matthey, the overview of the Chinese platinum market delivered by GFMS, and the perspective of the PGM investor arena provided by Redkite Capital Management LLP will, I hope, ensure another successful session for the PGM sector.

Ample networking opportunities will be available at the evening cocktail party, sponsored by the Silver Institute and LPPM, and of course, the Conference dinner. A piper will welcome delegates to the dinner venue and enforce the Scottish theme.

Silver is the early morning topic on Tuesday, led by Michael DiRienzo of the Silver Institute. Jessica Cross, James Steel and Roque Benavides will tackle the prospects for supply and demand, London's role in the silver market, and mining in Peru.

While the topical issues *du jour* will be dissected over the course of the two-day event, the real showdown will take place on Tuesday afternoon as the panel discussion chaired by Stephen Branton-Speak has the onerous task of debating the future of the London Precious Metals Market. This is your opportunity to ask the difficult but relevant questions so do make full use of the available technology and pose your questions to the speakers. Good luck to Phil Clewes-Garner, Raymond Key, and Kamal Naqvi!

John Reade, in his usual hot seat, will deliver the Conference summary which is one of the tougher jobs in the programme. Lunch will wrap up the 2009 Conference before delegates bid each other goodbye for another year.

As Chairperson of the Public Affairs Committee, I am very proud of the hard work invested by my fellow committee members and the LBMA executive. In reality it is some time since the LBMA staged a 'winter' extravaganza, but the weather in Scotland should not dampen spirits at the Conference. Go forth and enjoy, or as the Scots say, *Ceud Mìle Fàilte* – or "a hundred thousand welcomes". ■

Dr Edel Tully *Head of Precious Metals Research at Mitsui and Co. Precious Metals Inc has been a member of the Public Affairs Committee since February 2008 and became its Chairperson in June 2009. Edel has global responsibility at Mitsui for market analysis and forecasting across gold, silver and the platinum group metals. Prior to joining Mitsui, Edel was a researcher and lecturer from 2002 to 2006 whilst earning her doctorate in gold calendar seasonality dynamics at Trinity College, Dublin.*

The LBMA Precious Metals Conference 2009 Programme

1-3 November 2009

The Balmoral Hotel, Edinburgh

Sunday, 1 November

Welcome Reception

Balmoral Hotel, Sir Walter Scott Suite

Sponsored by the World Gold Council

Day One – Monday, 2 November

Opening Session

Welcome – LBMA Chief Executive

Introductory Remarks – LBMA Chairman

Kevin Andrew Crisp, Mitsubishi Corporation UK plc

Keynote Speech

Paul Mercier, Deputy Director General of Market Operations, European Central Bank

The Role of the Bank of England

Michael Cross, Head of Foreign Exchange, Bank of England

Session 2: Impact of the Financial Crisis on Precious Metals Industry

Chairman – Steven Lowe, Managing Director, Bank of Nova Scotia - ScotiaMocatta

Issues Facing Producers

Issues Facing Consumers

Aram Shishmanian, Chief Executive Officer, World Gold Council

Issues Facing Refiners & Fabricators

Mehdi Barkhordar, Managing Director, PAMP

Session 3: Investment – Gold and Other Precious Metals

Chairman – James Cross, Swiss Gold DMCC

David McWilliams, Economist

The ETF Market

Stephen Mueller, Executive Director, Bank Julius Baer & Co. Ltd

James Steel, HSBC

Session 4: PGMs: Looking Forward

Chairman – Edel Tully, Research Analyst, Mitsui Global Precious Metals

The Auto-catalyst Market – The Next Decade

Heraeus Metallhandelsgesellschaft GmbH

The Challenges Facing South African Producers

PGMs - The Investor Arena

Michael Sheehen, President, Red Kite Capital Management LLP

Cocktail Reception

Co-sponsored by the Silver Institute and the London Platinum and Paladium Market

Conference Dinner

Prestonfield House

Day Two – Tuesday, 3 November

Session 5: Silver

Chairman – Michael DiRienzo, Executive Director, Silver Institute

Prospects for Silver Supply & Demand

Phillip Klapwijk, GFMS

London's Role in the Silver Market

Mining in Peru

Roque Benavides, Buenaventura, Silver Institute

Session 6: The Future of the London Precious Metals Market

Chairman – Stephen Branton-Speak, Partner, Goldman Sachs

Panel: Philip Clewes-Garner, HSBC and LPPM Chairman

Raymond Key, Global Head of Metals Trading, Deutsche Bank

Kamal Naqvi, Director, Credit Suisse

Session 7: Delegate Feedback & Closing Session

Chairman – Stewart Murray, Chief Executive, LBMA

Conference Summary

John Reade, Precious Metals Strategist, UBS Investment Bank

Prizes Presentation: Best Speaker and Feedback Session Participant

Market Moves

Nicholas Frappell to **Triland Metals** in London to head its precious metals business. Nicholas was born and raised in the Far East. After completing an Economics degree at the City University, London, he joined the precious metals desk at Bank of Boston in London.

He then spent two years working in Tokyo for Sumitomo Corporation, working on TOCOM Arbitrage, and moved back to Sumitomo London, looking after Silver, Islamic financing and latterly Platinum Group metals.

He joined Triland as Head of Precious Metals in August 2009. Nick has served on the Management, the Finance, and the Membership Committees of the LBMA, and also the Market Advisory Committee of the NYMEX.

Tom Coghill to **Standard Chartered Bank**. Tom has been appointed as a Director in Financial Markets where he will head up Corporate Metals Sales in Europe. Tom joins from Deutsche Bank in London, where he was previously responsible for metals sales in both Europe and North America. Prior to Deutsche Bank, Tom worked at Citigroup from 1997, as a salesperson in the Global Commodities group.

The *Commitment of Traders Report* and its usefulness

By Matthew Turner, Commodity Analyst, VM Group

"Speculative fever grips the gold and silver markets" has become a ubiquitous headline, but keeping track of what speculators are doing would be far more difficult than it already is without the weekly Commitment of Traders Report of the Commodities' Futures Trading Commission (CFTC). For decades, this has helped analysts to make some sense of trading dynamics on the Comex futures markets, by splitting the participants up by their reason for trading futures.

As of September this year, the CFTC has enhanced the report to further refine these categories. In theory, this should give us a greater understanding of the market – but does it really?

The Comex division of the Nymex futures exchange remains the most liquid and widely used exchange for trading gold and silver futures. The exchange provides daily information on the amount of futures contracts outstanding, their strike price and date of maturity. This is useful as far as it goes, but as all futures contracts have two sides – a long and short – it tells us little about whether speculators are long or short. This is where the Commitment of Traders (CoT) report is useful because, as of the close of business each Tuesday (although the report itself is released on Friday), it records the long and short positions of three categories of market-user: commercials, non-commercials and non-reportables. Traditionally, as the commercials are seen as entities using the market for hedging business risks (the CFTC describes them as "engaged in business activities hedged by the use of the futures or option markets"), the non-commercials are assumed to represent speculative interest. Most analysts also add in the positions of the 'non-reportables', (which are simply contracts held by users that did not meet the minimum reporting size), as small users of futures markets are more likely to be speculators than hedgers. In gold and perhaps silver this is almost certainly the case, but it is not necessarily so for all commodities. As these entities hold different amounts of long and short positions, one can see whether speculators are collectively net long (own more long contracts than short contracts), and follow the changes on a weekly basis.

The reform of the CoT report has come about because of political concern - largely inspired from within the US - as to the role speculators may have played in pushing up the prices of some agricommodities and energy products, and whether the report was accurately measuring them. So the reform, in a way, has nothing to do with gold or silver; it's more of an attempt to foster greater transparency in those futures markets that are of daily concern to US legislators - crude oil and agricommodities - because last year's soaring prices in the market have attracted the most voter anger.

In particular, it has been argued that the CoT report was understating investment by not accurately recording a relatively new and large user of futures markets, the commodity index funds. This, it is alleged, is because although some commodity index fund buying will be done directly, and so show up in the non-commercial category, much of it is done by swap dealers, who typically are categorised as 'commercials', as they are 'hedging' their exposure to investment funds. So, the theory runs, not only might the report underestimate investment, but if the net long of commercials is rising then, by definition, the net long of non-commercials, what we have called 'speculators', will be falling, which could give a misleading picture of investment trends.

The new report aims to fix this by splitting the two original categories, commercial and non-commercial, into two further segments, making four new categories; commercials thus become the snappily titled "Producer/ Merchant/ Processor/ User" and crucially "swap dealer" categories, while non-commercials become "managed money" and "other reportables". The non-reportables remain the same. The CFTC explains the new categories thus:

Producer/Merchant/Processor/User: A "Producer/Merchant/Processor/User" is an entity that predominantly engages in the production, processing, packing or handling of a physical commodity and uses the futures markets to manage or hedge risks associated with those activities.

Swap Dealer: A "swap dealer" is an entity that deals primarily in swaps for a commodity and uses the futures markets to manage or hedge the risk associated with those swaps transactions. The swap dealer's counter-parties may be speculative traders, like hedge funds, or traditional commercial clients that are managing risk arising from their dealings in the physical commodity.

Money Manager: A "money manager," for the purpose of this report, is a registered commodity-trading advisor (CTA); a registered commodity pool operator (CPO); or an unregistered fund identified by CFTC. These traders are engaged in managing and conducting organised futures' trading on behalf of clients.

Other Reportables: This comprises every other reportable trader that is not placed into one of the other three categories.

The following tables show how the new report compares to the old report for gold and silver as of 29 September, the date of the latest release at time of writing. It is important to remember that the categories 'commercial' and 'non-commercial' are only being disaggregated – they still contain the same number of contracts, and hence the same longs and shorts as before.

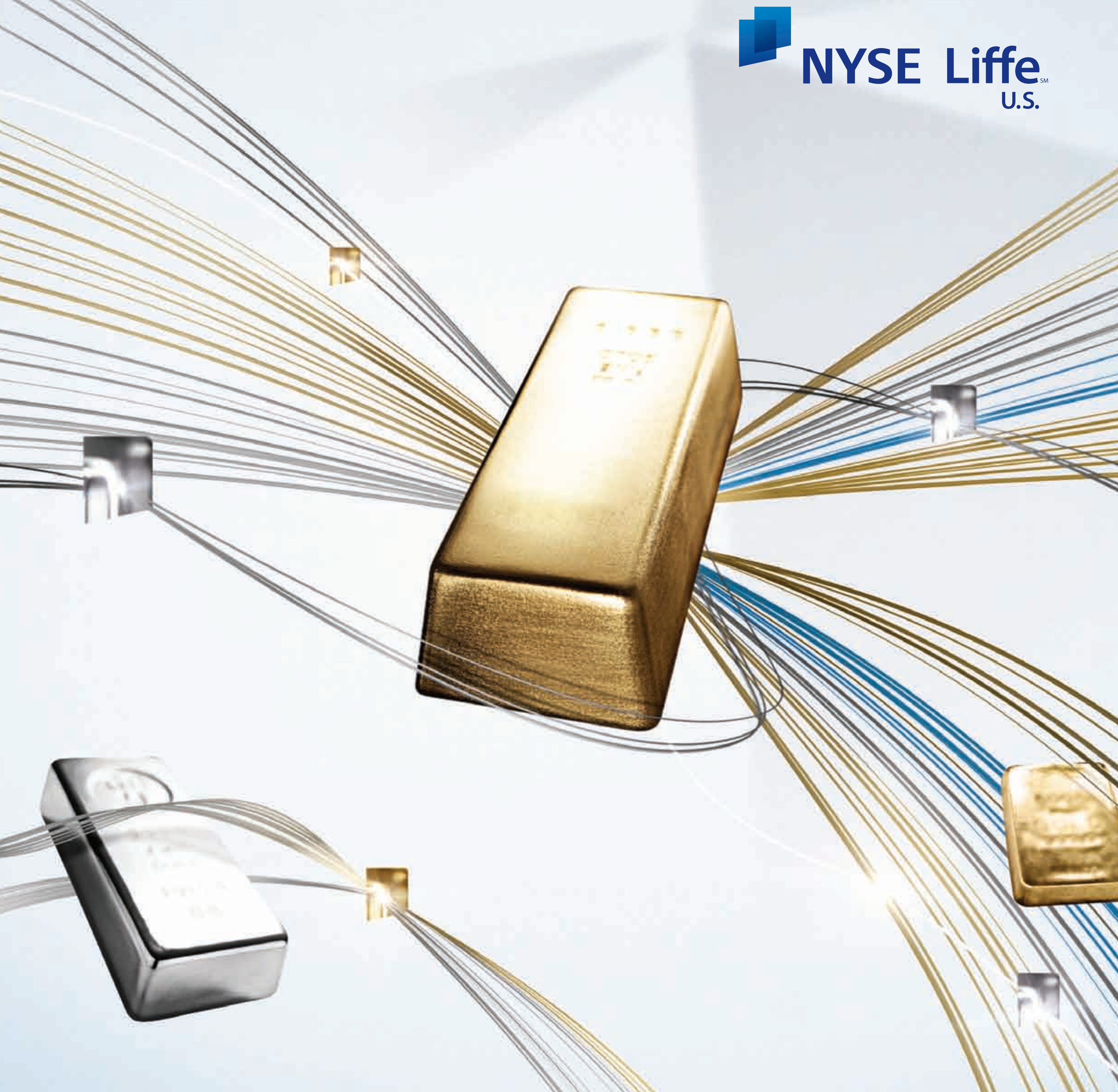
So, taking gold, we begin with open interest – the total number of outstanding contracts on Comex – which was 454,585 contracts.[1] As futures have a long and short side, this means that there were also 454,585 longs, which in the old report were split into a non-commercial long of 252,994 contracts, non-commercial spreading (which is where an entity has both long and short contracts) of 49,564 contracts, a commercial long of 84,923 contracts and finally 43,848 of non-reportables. The new report splits the non-commercial long and the non-commercial

PRECIOUS METALS. SOLID FOUNDATION.

GOLD AND SILVER FUTURES. NOW ON NYSE LIFFE U.S.

INTRODUCING NYSE LIFFE U.S., THE NEW U.S. FUTURES EXCHANGE OF NYSE EURONEXT. BUILT TO OFFER THE MOST EFFICIENT AND FLEXIBLE WAY TO TRADE PRECIOUS METALS. TRADE PHYSICALLY DELIVERABLE GOLD AND SILVER FUTURES CONTRACTS, AND THEIR MINIS, TOO. ADD PRECIOUS METAL ETFS AND YOU'LL ENJOY UNIQUE DISCOUNTS AVAILABLE ONLY ON OUR GLOBAL EXCHANGE PLATFORM. PRECIOUS METALS FUTURES ON NYSE LIFFE U.S.: ANOTHER WAY NYSE EURONEXT POWERS THE EXCHANGING WORLD. TO LEARN MORE, E-MAIL METALS@NYX.COM OR VISIT www.nyx.com/nyseliffeus

NYSE Liffe℠ U.S.



©2009 NYSE Euronext. All rights reserved. NYSE Euronext and its affiliates do not recommend or make any representation as to possible benefits from any securities, futures, investments, or third-party products or services. Investors should undertake their own due diligence regarding their securities and investment practices. This advertisement may contain forward-looking statements regarding NYSE Euronext and its affiliates. Such statements are based upon the current beliefs and expectations of management and are subject to significant risks and uncertainties. Actual results may differ from those set forth in the forward-looking statements.

spreading into two further categories, making four in all – 198,175 contracts of managed money longs, 31,419 managed money spreading, 54,819 other reportable longs and 18,145 'other reportable' spreading. Note that the longs and the spreading contracts still each total the same as in the old report, and therefore collectively they equal the total of the old non-commercial category. This means the residual 'non-reportable' long category also remains the same, at 43,848 contracts.

The disaggregation follows a similar pattern for the commercial category, with longs of 84,923 contracts, but there is a slight difference. Whereas, before, there was no spreading category for commercials and there still isn't one for the Producer/Merchant/Processor/User category (because the spreading category measures the extent of arbitrage trading in the futures markets, and an arbitrage using the futures markets is not a commercial activity), there is one for the other new category, the swap dealer. Thus the commercial long is split into three categories: Producer/Merchant/Processor/User long of 40,629 contracts, a swap dealer long of 34,250 contracts, and a swap dealer spreading of 10,044 contracts. This new spreading category, which by definition has a counterpart on the short side, means that the old report overstated the longs and shorts of the commercial category, although not the net position.

For the short side, exactly the same analysis applies as for the longs, with the same disaggregated categories.

The net position, which is the longs minus the shorts, by definition has no spreading category, as these cancel out, and therefore, it is rather simpler – clearly showing how the two reportable categories in the earlier report are now split into two new categories, with the non-reportables the same.

So have we learnt anything new? On the non-commercial side, not a lot. Where we had non-commercial, we now have 'managed money' and 'other reportables'. Of those, managed money is clearly useful, being obvious speculation/investment demand. Across all 22 commodities in the new report, gold and silver have the highest 'managed money' long, at 44% and 33% of open interest respectively, which intuitively seems right. But of course all of this was previously in the non-commercial category, and as we don't see any reason not to continue adding the category 'other reportables', to get total investment/speculative demand, we in fact still have the non-commercial category as before. In other words, the disaggregation isn't very illuminating – and is unlikely to become so unless as we get more data both in the past (the CFTC has promised to release two years' back data imminently at the time of writing) and, in the future, showing that the two categories reveal very different trends.

But reform of the non-commercial category wasn't the real point of the new report. Instead, it was concern that speculative investment in commodities was being 'hidden' in the commercial category via swap dealers' hedging of index fund investment. The new report separates out swap dealers from those entities that are hedging more obviously commercial activity. Interpreting this category for gold and silver is tricky, as rather than showing a huge undiscovered investment position, in both gold and silver, the swap dealers are net short. In gold, this net short was 92,287 lots as of 29 September (made up of longs, including spreading of 44,294 contracts, and shorts, including spreading of 136,581 contracts), equal to 20% of open interest. For silver, the effect is less pronounced but still there – swap dealers were net short by 2,241 contracts (with longs and spreading of 19,594 contracts offset by shorts and spreading of 21,835 contracts) as of 29 September, about 2% of open interest.

This doesn't tally with what we know about index fund investment in gold and silver, which is that both are substantially net long. The CFTC's Quarterly Investment Report estimates that, at the end of June 2009 (the nearest available date), index fund exposure in gold was 113,000 contracts long and 40,000 contracts short, while in silver it was 38,000 contracts long to 11,000 contracts short. While not all of these will translate into actual futures contracts held on Comex (traders will net off positions held both long and short before using the futures market) we believe most will be.[2]

The CFTC gives two reasons why the net

Open Interest – 454,585

Long – 454,585

OLD	NC long 252,994	NC spreading 49,564			C long 84,923			NR long 67,104
NEW	MM long 198,175	MM spreading 31,419	Other long 54,819	Other spreading 18,145	Producer/merchant long 40,629	Swap dealer long 34,250	Swap dealer spreading 10,044	NR long 67,104

Short – 454,585

OLD	NC short 21,608	NC spreading 49,564			C short 360,157			NR short 23,256
NEW	MM short 3,726	MM spreading 31,419	Other long 54,819	Other spreading 18,145	Producer/merchant short 223,576	Swap dealer short 126,537	Swap dealer spreading 10,044	NR short 23,256

Net – 0

OLD	NC net long 231,386	NC spreading 0			C net long (275,234)			NR net long 43,848
NEW	MM net long 194,449	MM spreading 0	Other net long 36,937	Other spreading 0	Producer/merchant long (182,947)	Swap dealer net long (92,287)	Swap dealer net spreading 0	43,848 67,104

swap dealer position might not match the index position:[3] a) swap dealers also hedge risks that are not index-fund related (which would mean the swap positions being higher than the expected index positions); and b) there are index fund investors who directly buy futures rather than use swap dealers, and so are in the managed money category (which would mean the swap dealer positions being lower than the expected index position). For gold, and to a lesser extent silver, for the longs it seems (b) must be particularly important.

We can use these figures to say what is the maximum amount of investment in both metals that might be hidden in the swap dealer category. For gold as of 29 September there were swap dealer longs of 44,294 contracts, of which 10,044 were spreading, so also short. It is possible that all 44,294 longs were hedging long index fund positions (although swap dealers clearly have other risks that they hedge), which as 10,044 of those were spreading contracts would also imply in that category were 10,044 index short contracts,[4] meaning a net long index position of about 34,000 contracts. If this was the case, then to fully count investment in gold on Comex we could add to our non-commercial net long of 231,386 contracts and our non-reportable net long of 43,848 contracts another 34,000 more net longs for index investment that were hidden in the commercial category. For silver, doing the same calculations, i.e. assuming the entire swap dealer longs are index investment, we could add another 18,000 longs to the non-commercial net long of 47,410 contracts and non-reportable net long of 16,696 contracts. Neither of these two additions is huge, and not something that invalidates using the non-commercial category to gauge investment trends, but they do represent an eighth more gold investment and 28% more silver investment than we would estimate from looking at the non-commercial and non-reportable categories alone.

There is another consequence, if our numbers are correct. If net 34,000 index fund long contracts in gold and 18,000 contracts in silver are hidden in the swap category, this still means that (using the data from the Quarterly Investment Report as a guide) 39,000 net long index fund contracts in gold, and 9,000 net long index fund contracts in silver are in the non-commercial category (and probably in the managed money sub-section). In many ways, these investments are different to 'traditional' speculation, being less volatile and less directly linked to the specific fortunes of gold and silver (rather than commodity and investment trends as a whole). It's hard to be certain about the numbers, but if the non-commercial net long ever falls below something like 34,000 contracts in gold or 9,000 contracts in silver, be aware that the non-index speculative investor might already be net short. ■

Matthew Turner *has been with VM Group since 2001 and covers precious metals, agricommodities and economic analysis and forecasting. Prior, Matthew was an economist at the World Gold Council and a researcher at The Economist. He holds a BA Hons in PPE from Magdalen College, Oxford University and an MSc in Economics and E-Commerce from Birkbeck College, University of London.*

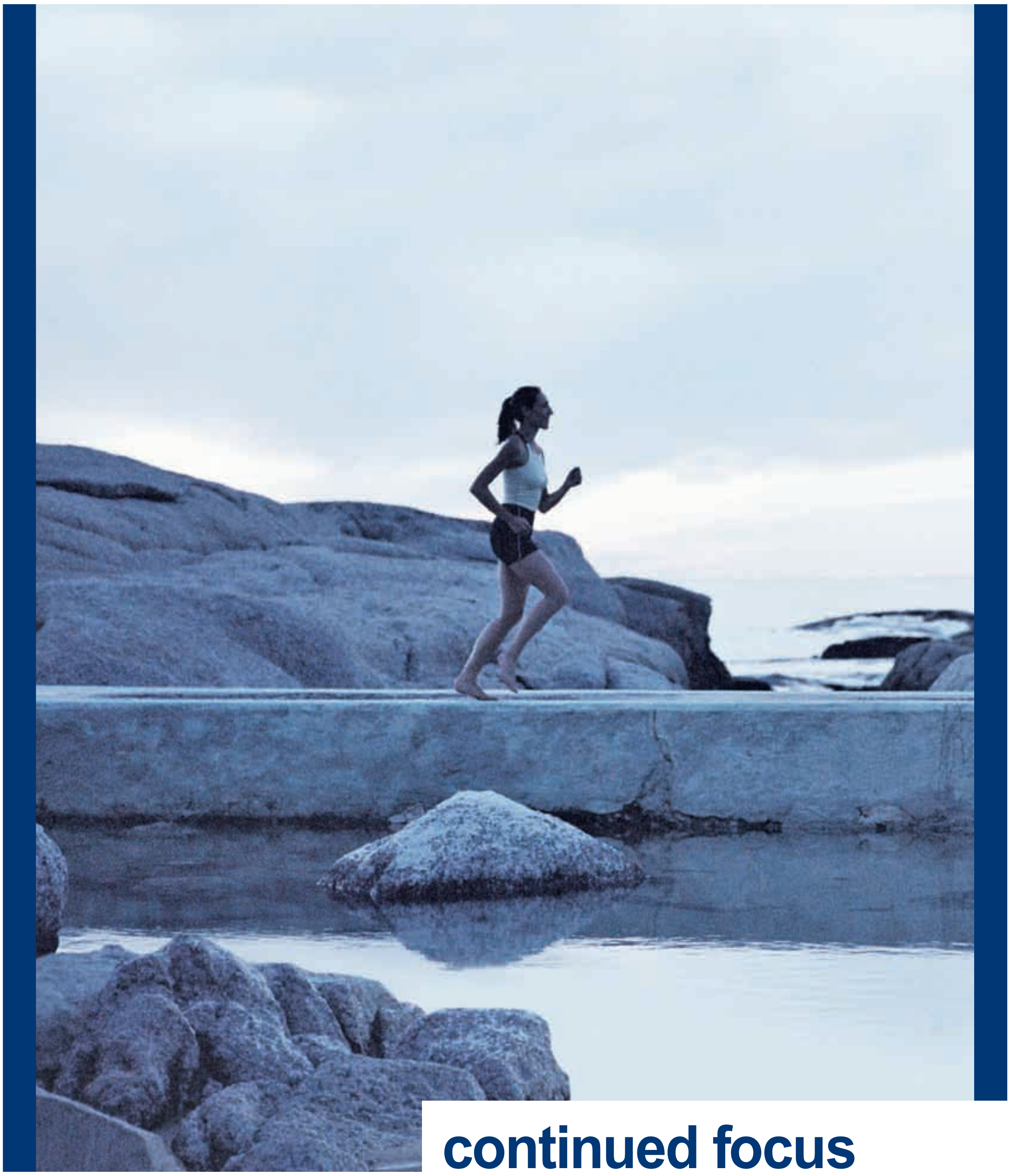
[1] This is the futures-only report – there is also a futures and options report. Normally the wider report is better, but as index funds typically invest in futures only, we will use that report in this article.

[2] Comparison of the 12 agricommodites where the CFTC publishes a weekly index fund report to the Quarterly Investment Report suggests that there are fewer longs and shorts held on the exchanges than notionally would be needed but the net (long/short) position is much the same.

[3] Although for the 12 agricommodities where the CFTC publishes index fund data on a weekly basis the two categories do normally match up reasonably well.

[4] It is possible, because the CFTC classifies entities not trades, that of the swap dealers' 34,250 spreading contracts all 34,250 held long were hedging index fund exposure, but none of the 34,250 held short were not. But it is rather unlikely.

	Open Interest – 128,695							
	Long – 128,695							
OLD	NC long	NC spreading			C long			NR long
	54,966	19,057			26,732			27,940
NEW	MM long	MM spreading	Other long	Other spreading	Producer/merchant long	Swap dealer long	Swap dealer spreading	NR long
	42,374	11,894	12,592	7,163	7,138	17,874	1,720	27,940
	Short – 128,695							
OLD	NC short	NC spreading			C short			NR short
	7,556	19,057			90,838			11,244
NEW	MM short	MM spreading	Other short	Other spreading	Producer/merchant short	Swap dealer short	Swap dealer spreading	NR short
	2,840	11,894	4,716	7,163	69,003	20,115	1,720	11,244
	Net – 0							
OLD	NC net long	NC spreading			C net long			NR net long
	47,410	0	0	0	(64,106)	0	0	16,696
NEW	MM net long	MM spreading	Other net long	Other spreading	Producer/merchant net long	Swap dealer net long	Swap dealer spreading	
	39,534	0	7,876	0	(61,865)	(2,241)	0	16,696



continued focus

WHEN IT COMES TO GIVING YOU an expert view on the precious metals markets, we have the knowledge, experience and understanding to make a difference to your business. As a leading metals trader, we have the insight and commitment to help deliver your commodity needs.

RBS Sempra Commodities is a business of The Royal Bank of Scotland plc

For more information, call +44 (0)20 7847 7618

rbssempra.com

Make it happen™

RBS Sempra Commodities

The Royal Bank of Scotland plc is authorised and regulated by the Financial Services Authority in the United Kingdom.
Registered Office: 36 St Andrew Square, Edinburgh EH2 2YB. Registered in Scotland No. 90312."Sempra" is a trademark of Sempra Energy.

Jastram's Golden Constant

How is it relevant today?

By Jill Leyland, Economics Consultant

In his foreword to the new edition of Roy Jastram's "The Golden Constant" Pierre Lassonde[1] wrote: "This book, more than any other, has given me my lifelong passion for understanding the role of gold in our societies."

The Golden Constant was the first statistical proof of gold's property as an inflation hedge over the centuries. For this, and for its masterful examination of the behaviour of gold and its purchasing power against the background of political and economic events, it is rightly considered a seminal study.

However, when published in 1977, it was too soon to assess whether gold's long-term inflation hedging characteristics would persist after the gold price was freed in 1971. The new edition, to which I had the privilege of adding two chapters to Jastram's original work, was able to start doing this. This article will summarise the main findings of the updated version and attempt to draw some conclusions for the present.

The approach adopted by Roy Jastram was in essence very simple (although executing it was certainly not): research (when necessary) and construct an historical index series of the gold price; research (when necessary) and construct an historical index of prices; divide one by the other to compute an index of the real value of gold; and then examine the behaviour of these three series over time against the political and economic developments. His main analysis goes back to 1560 for England/UK and to 1800 for the USA.

What did Jastram find and do his findings still hold after 1971? I suspect that two of his conclusions will surprise some people since they are counter-intuitive and contrary to current experience. He concluded from his research that: Gold is a poor hedge against major inflation and that gold appreciates in operational wealth (purchasing power) in times of deflation. Have a look at Figure 1, which shows the gold price, the price index and the index of the purchasing power of gold for England from 1560 to 1970. This shows how gold prices and wholesale prices broadly kept pace with each other but also how in times of inflation – until 1650, the Napoleonic wars, around World War 1 and then from 1950 onwards – the general price level moved up faster than gold so the purchasing power of gold fell; vice versa in times of deflation.

While at first sight it may seem strange from the perspective of the present day that gold lost value in times of inflation in the past, there is in fact a simple explanation. Gold was either money, or closely related to money, throughout this period. In times of inflation when prices rise the value of money falls. Hence it is entirely logical that gold's purchasing power behaved that way in the past.

But from 1971 the opposite is true and we revert to what we today consider the more normal situation of gold acting as a hedge against inflation, as in the 1970s, or the fear of inflation, as in recent times.

In contrast, Jastram's main conclusion - that despite often substantial fluctuations gold has held its purchasing power over the centuries – still applies. Figure 2, for example, shows how gold and consumer prices have broadly kept pace with one another in the USA from 1800 to the present. Figure 3 shows the purchasing power of gold from 1560 in England/UK and from 1800 in the US. Its purchasing power has fluctuated, sometimes sharply. But in both countries it fluctuates around a roughly horizontal line – a stable level.

Perhaps even more remarkable is the experience of some other countries we look at briefly in the book. France and Germany, shown in Figure 4, suffered more severely from the wars of the 20th century than either the UK or the US. France was defeated and occupied during the course of World War 2 while Germany was defeated and suffered complete economic and political breakdown at its end. Germany also experienced the hyperinflation of the early 1920s. Yet again, while gold's purchasing power fluctuated, and while at times the lack of market exchange rates or the statistical problems associated with hyperinflation impose breaks in the series, the same conclusion holds. A German family owning a certain quantity of gold at the end of the nineteenth century would find, if it still owned it today, that it would still buy approximately the same quantity of goods and services. In contrast any quantity of German currency held at the end of the nineteenth century would today be worthless.

For an economist it is not entirely surprising that if the long-run stability of gold's purchasing power holds in one country it holds in all since in theory exchange rates should over the long term adapt to changes in inflation differentials. Nevertheless the 20th century is an extremely severe test of this.

Figure 1: Gold, Wholesale Prices and the Purchasing Power of Gold, England, 1560 to 1970 (Indices, 1930=100)

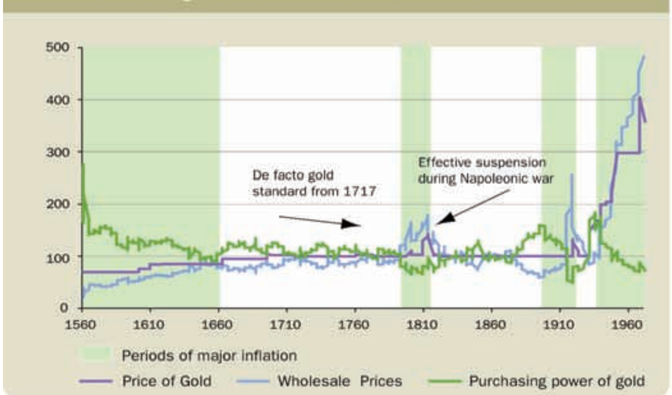
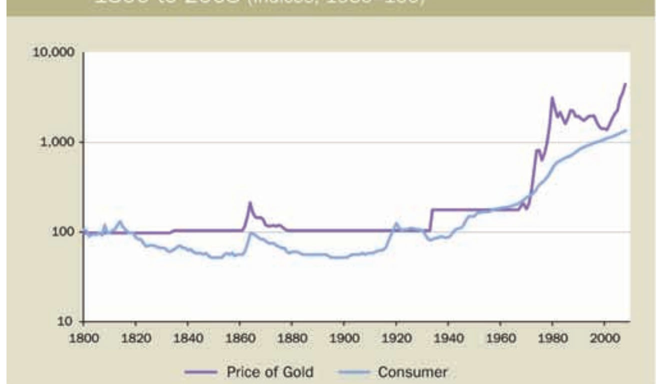


Figure 2: Gold prices and consumer price index in the US, 1800 to 2008 (Indices, 1930=100)



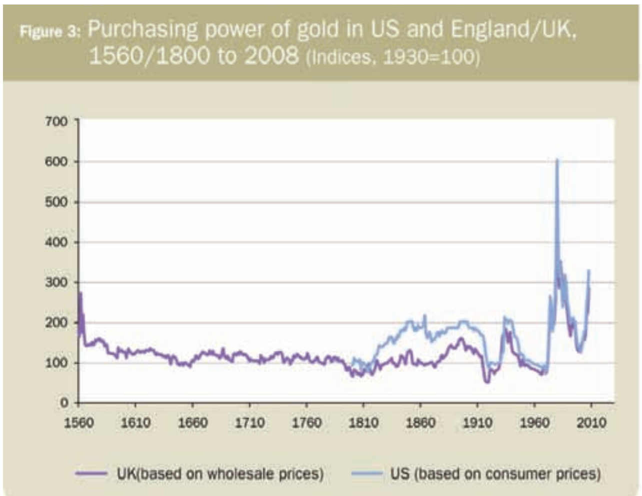


Figure 3: Purchasing power of gold in US and England/UK, 1560/1800 to 2008 (Indices, 1930=100)

Why does gold have this power of broadly holding its purchasing power over the centuries and what lessons can, or cannot, be drawn for present times?

Clearly the conclusion applicable to the pre-1971 period, that gold's purchasing power fell, almost automatically, in times of inflation and rose, again almost automatically, in times of deflation no longer applies in current circumstances. There are also arguments which can largely explain why during much of the time up to the World War 1 gold held its real value; for example the classical gold standard with a fixed gold/currency parity acted to keep prices stable over the long term thus making gold's long-term purchasing power also stable (the book had more details on this).

But the longer-term constancy of gold's purchasing power and the fact that this still persisted after World War 1 and in particular after 1971 is a different matter. Its constancy over the centuries, through a huge range of economic and political circumstances, through calm and crisis, peace and war, and through immense changes in the gold industry itself, is remarkable.

Two factors are worth mentioning as to why gold's purchasing power has remained broadly constant. First gold's appeal to humans, apart from its relatively limited industrial use, lies in two elements: the human need for security and the desire to own something of beauty. These are human needs that do not change over time. The desire for gold as an object of beauty or adornment goes back for millennia. The book, and the history of the 20th century, amply demonstrates its use in a crisis and thus how it responds to the need for security. Hence there is a constancy of demand for the metal to match the better-known constancy of supply, in that above-ground stocks of the metal change only slowly over time.

The second key point is perhaps the alternating fluctuations shown in the chart and the fact that for the last hundred years gold's purchasing power will rise for a period and then fall back by a comparable, if not always exactly similar, amount. Gold, no one's liability, can be viewed as the alternative to fiat money. Investors turn to it when confidence in fiat money, and particularly in the US dollar as the world's leading fiat money, falls: that is when they perceive that its value is diminishing or might be about to diminish. A fall in the value of currency can come around for two reasons: either due to inflation, which is why gold is seen as an inflation hedge, or through depreciation against other currencies, which is why gold often acts as a dollar hedge. Lack of confidence in the system can also develop through either political or economic concerns, which is why gold is seen as a safe haven.

It seems to be part of human nature that good times and bad times alternate. For a while all is well with the global economy, confidence grows but then can turn to over confidence and problems arise. This can happen to a relatively minor extent, as in the early 1990s, to a serious but geographically limited extent, as in the Asian crisis, to a more serious extent as in the current crisis, or to a really serious and prolonged extent as in the 1930s. And occasionally it happens to a catastrophic extent as in times of war. When people are confident many people do not see the need for a "safe haven". When problems occur, or are foreshadowed, the need becomes more obvious. This alternation contributes to longer-term constancy.

There are two conclusions from the book, therefore, that I think are particularly relevant to today: the fact that gold, despite sometimes severe fluctuations, does hold its real value over the centuries and the fact that it has repeatedly shown its ability to safeguard wealth through crises. Jastram's work, however, provides much more than that to anyone working in the gold market today. Gold has a strong and deep emotional pull on human sentiment. But deep emotion does not always lend itself to rigorous thought. The richness, depth and complexity of gold's long history can make a long and difficult study but historical perspective can be a major influence in individuals' attitudes towards the yellow metal. So the combination of intellectual rigour in Jastram's approach, his historical analysis and the way he wrote in both a scholarly and entertaining fashion (this is not a dry academic tome) is what makes his work so important for the gold industry. ■

[1] Chairman, Franco-Nevada. Formerly President Newmont Mining Corporation 2002-2006 and Chairman, World Gold Council, 2005-2008.

The Golden Constant: The English and American Experience 1560-2007 by Roy W Jastram with updated material by Jill Leyland. Published 2009 by Edward Elgar Publishing Ltd (www.e-elgar.com)

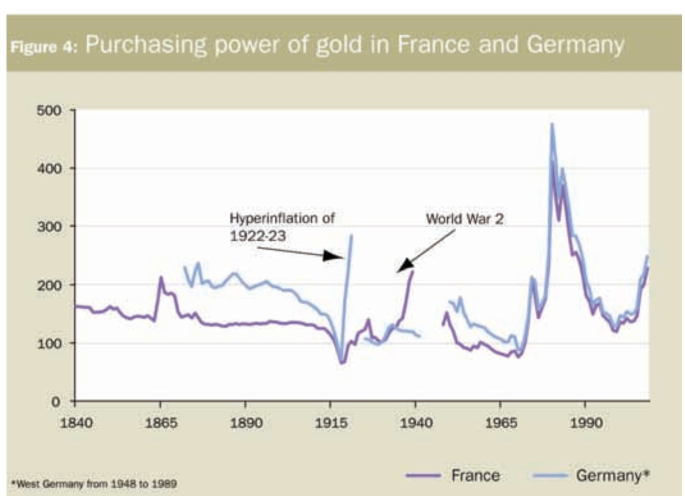


Figure 4: Purchasing power of gold in France and Germany

NOVENO
SIMPOSIUM INTERNACIONAL DEL ORO

PERÚ:

NINTH INTERNATIONAL GOLD SYMPOSIUM

LIMA PERÚ 18 - 20 MAYO | MAY 2010

Metales preciosos:
un desafío para la industria

Precious metals:
a challenge for the industry

Organizado por / Organized by

Comité Aurífero
Sociedad Nacional de
Minería, Petróleo y Energía

Sociedad Nacional de
MINERÍA PETRÓLEO
Y ENERGÍA

Promueven / Promoted by

BANCO CENTRAL DE RESERVA DEL PERÚ

WORLD GOLD COUNCIL

THE SILVERINSTITUTE

PERÚ Ministerio de Energía y Minas

The LBMA - Expanding Horizons

Editorial Comment by Stewart Murray, Chief Executive, LBMA

Just over ten years ago, the LBMA Management Committee decided that it was time to expand the Association's horizons and look beyond the shores of the UK for its future development. So a decade later, how has that decision affected the growth, membership and activities of the LBMA?

During the first decade of its existence, membership had been confined to UK companies, albeit that many of them were the UK branches of banks and trading houses whose head offices were located in North America, Asia or elsewhere in Europe. The most fundamental aspect of the changes introduced in 1999 was the decision to allow companies located outside the UK to join the LBMA as Associates, at the same time allowing companies whose activities were relevant to the London gold and silver markets to join. This is in contrast to the basic requirement for Membership (that a company must be actively involved in the loco-London market). Ten years on the result is that the number of Associates is greater than that of the ordinary Members and that the membership now encompasses 20 countries. Total membership now stands at 120 companies.

Another innovation in 1999 which affected me personally was the decision to appoint a full-time Chief Executive who would ex-officio be a member of the Management Committee. That was how I came to present myself for duty in the LBMA's tiny office in Frederick's Place on 1st October 1999.

Looking back at the development of the Association over the next ten years, it seems to me that it has grown from a boisterous teenager, full of energy, into a reasonably mature adult with lots of experience (both good and bad) gained

along the way. The workload has increased enormously. Our office space is comfortable without being showy while our systems and methods have improved immeasurably. Although our staff numbers have in effect doubled since 1999, I still find it almost embarrassing to admit to visiting delegations how few we are.

The biggest challenge in 1999 was undoubtedly to organise the LBMA's first conference which, it had been announced shortly before my arrival, would take place in Dubai in February 2000. We were in effect taking on the *Financial Times* whose Conference Division had been running an immensely successful gold conference for the previous twenty years. And the nearest we had to conference organising experience was the Great Hedging Debate – staged in Johannesburg – in 1997. But we had some real advantages: an enthusiastic Public Affairs Committee (which justified our slogan – "The Conference for the Industry, by the Industry") and a wonderful conference organiser (Maggie Nash, fresh from the events department at JP Morgan). If that first conference had not been a success, it is quite possible that there wouldn't have been a second. But it was and we are now eagerly anticipating our tenth in Edinburgh next month. With one exception, every conference has more than covered the external costs of holding the events and thus offset the considerable office overheads attributable to them.

Another area which has seen huge change over the past decade is our stewardship of the Good Delivery List. In 1999, the involvement of the Executive in the processing of applications for Good Delivery accreditation was minimal. There were only two referees, both UK companies, who bore the brunt of testing of applicants, both in relation to the assay test and the testing of sample bars and who therefore knew the identities of the applicants. The logistics of the application process were managed by the "Vaults", in other words the members of the Physical Committee, who took it in turn to process the applications through the stages of the technical assessment. Today by contrast, we have five referees (located in Japan, South Africa and Switzerland) who carry out their work on a double blind basis (ie, the referee is not aware of who is being tested and the applicant does not know which referee is testing its bars). The management of the process is now completely in the hands of the Executive. And finally proactive monitoring of Good Delivery refiners was introduced in 2004 (involving the regular re-testing of all refiners, including referees, on a three year cycle).

Although not actually part of the Good Delivery system, another activity in recent years has proved very popular with the refiners: the Biennial Assaying and Refining Seminar, first held in June, 2005. A by-product of these meetings was the Reference Materials Project which regular readers of the Alchemist have seen building up to its successful conclusion over the past two years. The success, both technical and financial of the project owes much to the commitment of the project Steering Committee and the expertise of the two manufacturers, Tanaka and Krastsvetmet.

The most recent development and one which is at a very early stage is the idea of commercialising the data on precious metals generated within the market. The genesis of this idea was the need for providers of cleared forwards to have a reliable forward curve, representing actual market conditions at the end of each trading day for the calculation of variation margins.

It is by no means clear where the concept of data commercialisation will lead. Together with some of the projects mentioned above, it does appear that the LBMA is becoming more of a business than the simple trade association of a decade ago. But it seems to me that regardless of the business model, one thing will remain true. The LBMA's main object will be to work for the good of the companies which together constitute the London bullion market and their customers around the globe. ■

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

Landesbank Baden Württemberg ("LBBW") was admitted as an ordinary Member on 1 September 2009.

The Royal Bank of Canada ceased making markets in forwards on 3 September 2009. It will continue as a spot Market Maker.

Associates

The Associateship of Baden-Württembergische Bank was terminated at the end of August, 2009 due to it having been merged into LBBW (see above).

GOOD DELIVERY LIST

There have been no changes in the companies on the Good Delivery List during the past quarter.

The LBMA has introduced one significant change to the Good Delivery Rules this year (in August, 2009). This relates to the situation which occurs from time to time where a Good Delivery refiner produces bars in the form of its registered Good Delivery bars that are intended for fabrication by a local customer and which do not meet the requirements of the LBMA (for instance having inferior appearance or in not having the specified bar marks). Such bars must be marked "NGD". The text of the new paragraph in section 7 of the Rules is shown below.

"If bars are produced in the general form of Good Delivery bars, but due to their intended use (for example bars produced for and delivered directly to an industrial customer for use as a raw material) they do not meet the Good Delivery specifications (for example, inferior appearance or sub-standard bar marks) then the Good Delivery refiner must stamp the bars NGD (meaning Non Good Delivery) in close proximity to the LBMA-approved manufacturer's mark."

COMMITTEES

Management

Gerry Schubert resigned from the Committee in early October as a result of his departure from INTL. We send him our thanks for his lively and positive participation in the work of the Committee over the last three years.

Usually, the Management Committee has a break in the summer but this year it met each month between August and October. The first of these meetings focused particularly on the question of the possible commercialisation of the data produced in the precious metals market. As a result, a new sub-committee, the Precious Metals Data Committee was set up under the chairmanship of Steve Branton-Speak. The first task identified by the sub-committee was the production of a forward curve, based on contributions from Market Makers and representing the actual situation in the market at the end of each trading day.

Physical

The Physical Committee met in late August and early October. The Committee was pleased to note that the long-running investigation into the electronic weighing of gold has finally produced a successful conclusion, namely an electronic scale that appears to be able to match the accuracy and reproducibility of the beam balance. See the brief article on this page by Douglas Beadle.

The main activity of the Physical Committee is of course monitoring (and eventually approving) applications for Good Delivery accreditation. At present, six refiners (from four countries) are actively going through the technical assessment procedure. This may be a record and it certainly places a heavy demand on the LBMA Executive. Five out of the six applications are for gold, which is a very different ratio from that of recent years, when most applications have been for silver. In addition, a further ten companies have indicated that they may submit applications in the coming year.

Proactive monitoring is another activity which places significant demands on the Executive's resources, especially when as at present, many of the companies being monitored are in Russia and China. Satisfying the import and export conditions in relation to the despatch of reference samples to these countries might best be described as a "challenge"!

The Physical Committee has always been responsible for the issue of VAT in the bullion market. The Committee has formed a VAT sub-committee to formulate proposals to put before HM Revenue and Customs ("HMRC") with a view to agreeing a uniform and simplified approach to the application of VAT to storage, transfer, handling and similar fees levied in respect of precious metals. It is hoped that it will be possible to reach agreement with HMRC by 1 January 2010, to coincide with the introduction of new EU VAT regulations concerning services and their place of supply.

Reference Materials Project

Following the successful conclusion with the gold part of the project in the summer, it is pleasing to report that great progress has been made with the silver materials. The project Steering Committee has concluded that the materials are homogeneous and essentially, it only remains to determine the concentration levels of the 21 contained elements (by means of a round robin analysis involving 13 assayers). It is hoped that the materials will be ready for shipment before the end of the year.

Public Affairs

There has been one change in the make-up of the PAC, as a result of David Holmes' resignation from the Committee, due to a change in his responsibilities at Commerzbank in the wake of the merger with Dresdner Bank. The resulting vacancy has been filled by Suki Cooper of Barclays. Many thanks to David for his four years of service on the PAC and in particular, for his many insightful and thoughtful suggestions.

The PAC has had something of a fallow period during the past few months following the most intensive period of work in the second quarter when the programme for the Edinburgh conference was developed. The

***The London Gold Marking Fixing Limited** has announced that there will be no afternoon gold Fixings on Christmas Eve, Thursday 24th December, 2009, nor New Year's Eve Thursday 31st December, 2009.*

Committee's meeting in late October represented the first step in planning the programme for the conference to be held in Berlin during the period 26 - 28 September, 2010. Check the website for more details as our plans evolve. And if you have a suggestion for a topic or a speaker, do please let the executive know.

Membership

Following Nick Frappell's resignation from the Committee in June as a result of his departure from Sempra, the vacancy has been filled by Davide Collini of Merrill Lynch. Thanks to Nick for his work on the Committee and best wishes to him in his new position at Triland.

The Committee met in September to review progress with a number of applications for membership and associateship. The Committee has also been asked by the Management Committee to carry out a review of the structure of the LBMA's membership and the requirements that applicants have to meet to be admitted.

REACH

The LBMA has been working to produce a position paper arguing that the large gold bars held in the vaults of the London bullion market should be regarded as articles for the purposes of REACH and that the corresponding imports should be excluded from an importer's REACH registration. The Brussels-based Precious Metals Consortium has assisted in the development of this paper. When completed, the paper will be submitted to the UK Competent Authority (probably in late November). The final phase in the work (at least for the moment) will be the organisation of a seminar, probably in early December, to allow LBMA members to evaluate whether they should join the Consortium or else obtain the necessary registration dossiers by means of a letter of access.

LBMA Staffing

Amy Berman has taken over the role of PR and Media Assistant from Rionne Preuveneers (primarily the editing of the *Alchemist* and managing the website).

Varsha Peiris has been appointed as Office Administrator to support the work of the Executive in a number of areas including office management, membership applications, associate reviews and meetings. ■

DIARY OF EVENTS

NOVEMBER

6-7
International Precious Metals & Commodities Show 2009
Munich
www.edelmetallmesse.com

10-12
Russia & CIS Mining Congress 2009
Moscow
T: +971 (0) 4 709 4500
F: +971 (0) 4 347 3889
www.terrapinn.com

20-22
China Mining Congress and Expo 2009
Tianjin Binhai International Convention and Exhibition Center
T: +86 10 5822 1790
www.chinamining.org

21-22
Hard Assets Investment Conference
San Francisco
T: +1 314 824 5515
www.hardassetssf.com

21-23
2009 China International Silver Conference
Chenzhou, China
T: +86-10-85692818
www.silver2009.antaike.com

DECEMBER

3-4
China Gold & Precious Metals Summit
Shanghai
T: +86 21 5181 5373
www.chinagoldsummit.com

JANUARY

20
Minesite Forum
London
T: +44 207 562 3381
www.minesite.com

FEBRUARY

9-12
Mining Indaba
Cape Town
T: +1 314 824 5515
www.iiconf.com

11-13
CIS Precious Metals Summit
Moscow
T: +44 20 7017 7342
www.adamsmithconferences.com

26
LBMA Annual Party
London
T: +44 20 7796 3067
www.lbma.org.uk

MARCH

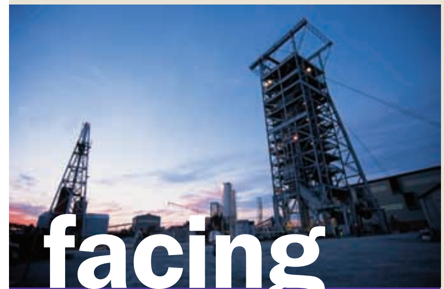
23-27
Asian Mining Congress
Singapore
www.terrapin.com
T: +65 6322 2700

MAY

18-20
International Gold Symposium
Peru
mjaramillo@snmpe.org.pe
T: +51-1 460 1600
F: +51-1 460 1616

JUNE

12-15
IPMI Precious Metals Conference
Arizona
www.ipma.org



facing facts

Paul Burton
Managing Director
GFMS World Gold Ltd

Gold Stocks Still Recovering

Just over a year ago, the gold equity markets were hit by the staggering news that Lehman Brothers had collapsed and that Merrill Lynch had been acquired. The news broke just as the annual gathering of the world's top gold companies and the most influential institutional investors was convening in Denver.

Fund managers and mining executives alike at the Denver Gold Group forum were shell-shocked by the extent and depth of the massive sell-off in gold equities. The scramble on the part of investors to be liquid and the need of many hedge funds to

cover redemptions caused the Philadelphia Gold/Silver Index ("XAU") to plunge from 150 to 64, a fall of 57% in less than a month.

This year, however, we have seen a gradual recovery in the market with an initial peak at 161 in June, when the gold price rose to US$980/oz, and then a new year high of 174 as the gold price marched its way to the US$1,000/oz mark in the sharp September rally.

Since the October 2008 low, the XAU has grown by 172% against a 35% increase in the gold price. This impressive performance probably says more about how oversold gold stocks were a year ago than it does about a return of the historical leverage to the gold price that gold stocks displayed in the past. Nonetheless, the mood at this year's Denver Gold forum was buoyant despite the trials of the past year, and interest in gold shares was high, with a record attendance.

One of the most significant and well-attended presentations in Denver was that given by Barrick Gold Corp, the world's biggest gold producer. CEO Aaron Regent's presentation focused on the company's decision to abandon its long-held strategy of hedging its gold production. Mr Regent explained the rationale behind the decision and outlined the mechanics of how this will be achieved in response to some probing questions from investors. Barrick Gold is eliminating all its hedging contracts by neutralising its fixed forwards and buying back a portion of its floating contracts. To finance the move, Barrick has raised a staggering US$4.0 billion through an offering of 109 million shares.

Barrick intends applying US$1.9 billion of the proceeds to eliminate all of its fixed-priced gold contracts (3.0 Moz) within the next 12 months. The company will either purchase gold in the open market, which will add to the demand side, or deliver its own production to settle the hedge contracts. Since the end of June, Barrick has already bought back 2.4 Moz of its gold hedges.
The company will apply some of the remainder of the funds raised to reducing its 'floating contracts' on 6.5 Moz of gold.

There has been a trend amongst producers over the past few years to unwind any hedgebooks as the gold price has increased in order to take full advantage of the rise, but Barrick is one the biggest and last to renounce the strategy.

Barrick has given its reasons for the about face as a combination of an increasingly positive outlook on the gold price, continuing robust gold supply/demand fundamentals, and the adverse impact its continuance of a hedging strategy was having on its appeal to the broader investment community. On this last point, figures from World Gold Analyst certainly show that Barrick has underperformed its contemporaries in the market since last year's downturn.

The table below shows how the top gold producers have fared since the October 2008 lows (figures to September 14th).

Company	% increase since Oct 08 low
AngloGold Ashanti	199%
Randgold	196%
Gold Fields	188%
Newcrest	175%
Agnico-Eagle	153%
Yamana Gold	131%
Kinross Gold	128%
Goldcorp	127%
Newmont	112%
Harmony	83%
Barrick Gold	76%

Meanwhile, in Denver, the gold-producing industry presented a positive picture of organic growth from a well-stocked portfolio of projects. Investors seemed to be encouraged by recent performances and appeared confident that growth plans are realistic.

Certainly, there are indications that the gold industry has reversed, although perhaps only temporarily, a four-year, 2% per annum declining trend, with news from GFMS in its latest assessment pointing to output having expanded by 7% in the first half of 2009. The dramatic improvement in production at one of the largest copper/gold mines in the world, Freeport McMoRan's Grasberg in Indonesia, was responsible alone for almost 1 Moz of the boost. This increase was not due to expansion, but a function of the mine sequencing at Grasberg, which resulted in activities being focused in higher grade pit areas this year.

Thus, the increase in January to July 2009 may be just a blip in the overall declining trend unless record exploration spending over the past few years can produce a few more success stories. However, that likelihood seems remote, because the flight from risk last year that severely hit the major gold producers was even harder on the junior exploration stocks.

The TSX Venture index (used here as a proxy for the exploration sector) more than halved (from 1,608 to 684) from post-Lehman to its nadir on December 5.
Highlighting the particular problems of a sector that relies on equity risk capital, the recovery of the index has been much more muted than that for the companies that actually produce gold (and are thus receiving high prices for their product). The index has risen 88%, against a gold price rise of 33% since December 5.

As another illustration of how the junior market has changed since the financial crisis of last year are the, comparative statistics issued by the TSX Venture exchange on trading activity. In the eight months to the end August 2009, the value of deals on the exchange fell by 64% compared with the corresponding period of 2008. The total market value of the companies on the exchange declined by 33%. Furthermore, transactions were down 41% and the number of new listings fell by 68% to just 59. Perhaps most telling, however, is the statistic that new equity financing more than halved to C$2.1 billion.

The junior sector has yet to fully recover, with only the most promising projects finding adequate support in the market. Many companies are still cash-strapped and in survival mode. The impact on an industry short of exploration success will be profound, as at least one full season of drilling has been lost in many cases. ■

Paul Burton *is Managing Director of GFMS World Gold, a company which undertakes equity research and publishes World Gold Analyst, a leading independent gold mining investment publication.*

Paul holds an MSc in Mining Engineering and an MBA from the University of the Witwatersrand, South Africa.
paul.burton@gfmsworldgold.com

The Alchemist is published quarterly by the LBMA.
For further information please contact Amy Berman, LBMA PR and Media Assistant
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The Alchemist is designed by Ion River, produced by Amy Berman

The Art of Precious Metal Transformation™

Knowledge

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

Innovation

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

Vision

PAMP®
Produits Artistiques Metaux Precieux

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: + 41 91 695 04 50 e-mail: info@pamp.com
fax: + 41 91 695 04 51 web: www.pamp.com

LBMA
GOOD DELIVERY
REFEREE

Alchemist

The London Bullion Market Association ISSUE 57 January 2010

LBMA

In this issue

New Year, New Peaks for gold and the London Bullion Market Association.
See LBMA Chairman, Kevin Crisp's New Years resolutions on page 20.

CLEARED OTC LONDON GOLD FORWARDS

Risk mitigation for the London bullion community

Cleared OTC London Gold Forwards:

- Contracts remain OTC forwards in clearing
- Mitigation of credit risk by clearing OTC transactions through CME ClearPort
- More than 100 years of proven safety and security with CME Clearing
- Independent, neutral settlement valuations through a daily mark-to-market process
- All good forward maturities from tom to 10 years

Whatever risks you face in the London gold bullion markets – from counterparty credit to operations to settlement – you can count on CME Group's Cleared OTC London Gold Forwards to help mitigate them, and to provide enhanced capital efficiencies. Our post-trade clearing services let you privately negotiate and execute your trades off-exchange, but by clearing the trade through CME ClearPort, you can substantially mitigate your risk. Only CME Group offers you the flexibility you need and the security of central counterparty clearing. Learn more at **www.cmegroup.com/lgf**.

CME Group

A CME/Chicago Board of Trade/NYMEX Company

CME Group is a trademark of CME Group Inc. The Globe logo, CME, Chicago Mercantile Exchange and Globex are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange Inc. COMEX is a trademark of Commodity Exchange Inc. These contracts are listed with, and subject to the rules and regulations of COMEX and CME. Copyright © 2010 CME Group. All rights reserved.

200th Anniversary of the 1810 Bullion Committee

A landmark in the history of the London market

By Timothy Green

This year marks a unique anniversary in the history of the London Bullion Market. Precisely 200 years ago, in February 1810, the House of Commons set up a Select Committee on the High Price of Gold Bullion to investigate why it had risen during the Napoleonic Wars.

Since the Bank of England ceased to redeem its bank notes in gold in 1797, as its reserves were eroded by the war, the price was up 20% – extraordinary because it had been fixed at £4.25 per ounce in 1717 by Sir Isaac Newton, Master of the Mint, and this 'gold standard' had been stable for decades ever since. Now it was £4.65. What had caused the escalation? "The debate," J. K. Galbraith declared, "was the most famous in all history on money and its management." It also put the spotlight on the London Gold Market. Not just the Governor of the Bank of England and the Clerk of its Bullion Office gave evidence, but also brokers, refiners, fabricators, merchants and exchange dealers. Every word of their testimony is in the Minutes of Evidence, which provide an account of the market from price-fixing, the role of the Bank's Bullion Office as the crossroads, to refiners and their sources of gold. Such a hands-on account has never been repeated.

During the 18th century, London had, according to one Bullion Committee member, "become the trading metropolis of Europe", not least in precious metals. Brazil had been the major gold producer since 1700. Most of the metal came to London, where the Bank of England built the first real 'official' reserves, to back its note issue, sending gold to be minted into guineas, which had become the daily currency. Silver from Mexico also poured in, but was swiftly shipped to India, which offered a higher price, by the East India Company (virtually no silver was coined). The silver was marshalled through contracts with its broker, Mocatta & Goldsmid (now ScotiaMocatta), which was also the exclusive broker in gold to the Bank of England, a role it had already played for almost one hundred years. So both Bank and broker were privy to virtually every deal.

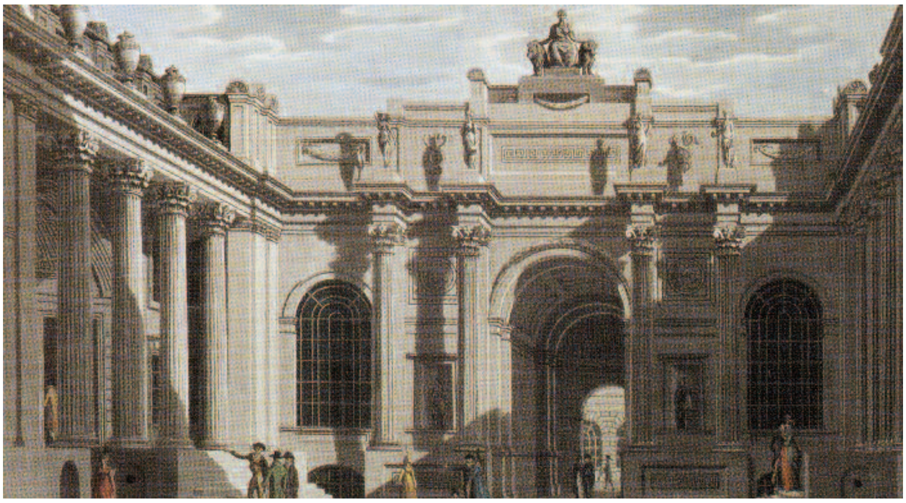
The Bullion Office was almost as old as the Bank, though it began as the Bullion Warehouse, its Clerk, John Humble, told the Committee. Humble was a venerable figure, who worked there from the 1770s until the 1830s. "It has been established upwards of 100 years," he said. "I understand it to have been instituted merely for the purpose of accommodation and safety between merchant and merchant as a place of deposit." The name had changed from Warehouse to Bullion Office around 1770. It was both minder of the Bank's own gold reserves and the crossroads of gold and silver entering or leaving the country.

"The business of the office is divided into two branches," John Humble explained. "The first is for the purpose of weighing and ascertaining the value of the bullion in which the Bank is concerned; the other, in which individuals only are concerned."

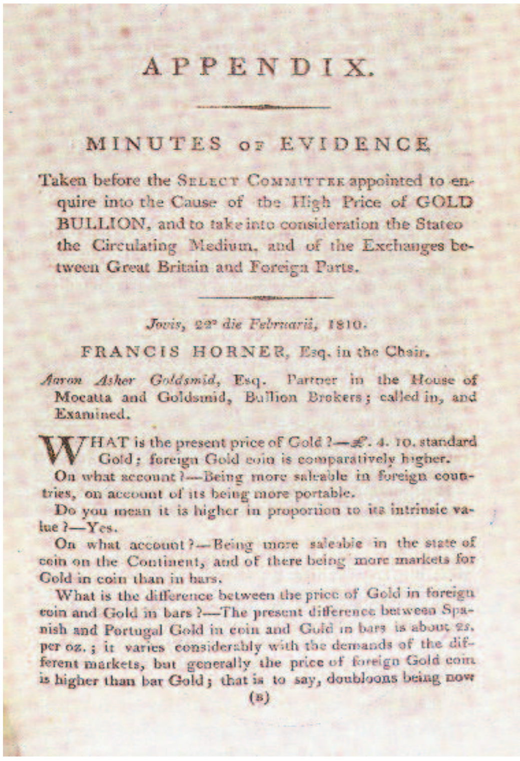
The Committee wanted more explanation. "What do you mean by ascertaining the value?" – "By weighing, calculating the fineness according to the Assayer's reports, and casting up the value according to the prices."
"Where do you get the prices?" – "From the Broker's reports made to the office, either on account of the Bank or individuals."

"Does the broker give you a general price, or the price of every transaction?" – "The price of every transaction."

"Is there more than one broker?" – "Only one house, there are several partners in the firm, the house of Mocatta & Goldsmid." Humble went on: "The bullion is deposited…by ship-masters, and lies…for the owners to whom it is consigned; we keep separate books for entering these deposits, one of which we call the packet-book, and the other the man-of-war book…We enter a manifest of deposit, the name of the ship-master and the consignee…the number of packages and what those packages are said to contain, for we receive them only as packages. When a sale takes place, that is transacted by the Broker between the seller and buyer, he giving a contract to each; the parties come to the office, and in their presence the package is opened, the bullion weighed, we deliver the



The Lothbury Court in the Bank of England, with the Bullion Office just through the archway (painted by Thomas Malton in 1801).
Credit: Reproduced by permission of The Bank of England



APPENDIX.

MINUTES OF EVIDENCE

Taken before the SELECT COMMITTEE appointed to enquire into the Cause of the High Price of GOLD BULLION, and to take into consideration the Stateo the Circulating Medium, and of the Exchanges between Great Britain and Foreign Parts.

Jovis, 22° die Februarii, 1810.

FRANCIS HORNER, Esq. in the Chair.

Aaron Asher Goldsmid, Esq. Partner in the House of Mocatta and Goldsmid, Bullion Brokers; called in, and Examined.

WHAT is the present price of Gold?—£. 4. 10. standard Gold; foreign Gold coin is comparatively higher.

On what account?—Being more saleable in foreign countries, on account of its being more portable.

Do you mean it is higher in proportion to its intrinsic value?—Yes.

On what account?—Being more saleable in the state of coin on the Continent, and of there being more markets for Gold in coin than in bars.

What is the difference between the price of Gold in foreign coin and Gold in bars?—The present difference between Spanish and Portugal Gold in coin and Gold in bars is about 2s. per oz.; it varies considerably with the demands of the different markets, but generally the price of foreign Gold coin is higher than bar Gold; that is to say, doubloons being now

(B)

The testimony of Aaron Asher Goldsmid, the first witness before the 1810 Bullion Committee.
Credit: Courtesy of The London Library

quantity to the seller…the whole of this is done by the Bank gratuitously."

The Committee had a final question. If there was only one broker, "have they, in your opinion, any power of control over the price?" – "None in the world, I believe."

This was confirmed by Aaron Asher Goldsmid, the 25-year-old partner, who was fielded by Mocatta & Goldsmid to face the investigation (the firm was founded by Moses Mocatta in 1671 and became a partnership with the powerful Goldsmid family in 1779). Asked initially, "Are there any other dealers in Gold but yours?", he replied curtly: "I apprehend none of considerable amount."

The key question was how the price was determined. Goldsmid replied: "By ascertaining the general disposition of the buyer and seller and stating the medium."

"Have you any reference in fixing the price, to the prices in the foreign market?- "Certainly."

"How do you ascertain that?" - "By enquiring the last price of various merchants and generally the disposition of the market concurs with the prices abroad…there is seldom any great fluctuation unless some great influx or rise…and any considerable repression of the exchange would tend to raise the price, which might arise from many causes…such as a particular demand for Gold on the Continent…of money going out of the country for the payment of troops abroad."

This was a practical comment. Although the Bullion Committee ultimately decided the prime cause of the high gold price was over-issuing of bank notes by the Bank since it no longer redeemed them in gold; the short-term demands on the market for gold and silver coin came from the British, French and other armies on campaigns to meet their expenses. Moreover, Goldsmid explained, since the pound sterling was weak, gold flowed out to Amsterdam, "the greatest market on the continent" to pay for grain imports. Gold was often in short supply. Twice, the demand was met only by the arrival of East India ships laden with Indian coin lured back by the high price (early dishoarding), which Mocatta snapped up at the dock for the Bank to dispatch to the Mint for new coin for Wellington's armies.

The crucial intermediary for delivery was then Nathan Mayer Rothschild, newly arrived in London, whose courier network across Europe, through his brother James in Paris, became indispensable. Each courier carried up to 20 kilos of coin in special jackets or saddle bags. However, to his annoyance, Rothschild was not accepted as an official broker by the Bank (that did not come until 1842). Another small dealer, James Sharp, also applied, but had to wait decades for Bank approval, though the firm, as Sharps Pixley, eventually became a leading market member until taken over by Deutsche Bank in 1993. So, in 1810, the modern market was emerging, but exclusivity was the watchword.

Only one refinery, Browne & Brind, had its bars of 200 ounces at 916 fine accepted at the Bullion Office. Curiously, it did not give evidence to the Committee, but two other refiners spoke up. Samuel Binns of William and Jacob Wood (a refinery possibly dating from Elizabethan times) reported he bought up foreign coin, 'light' coin (it was illegal to melt guineas) and bar gold "from people who came to our house". He sold foreign coin through Mocatta, "whose price rules our price completely". The rest went to jewellery manufacturers (total hallmarking of gold jewellery by the Assay Office at Goldsmiths Hall in 1809 was 34,000 troy ounces).

William Merle of Cox and Merle, who called himself a "banker and gold refiner", took in foreign coin and "a great deal of Gold dust from Africa…4,000 ounces recently…near 3,000 ounces coming now". The African gold, he added, was made into bars and sold through Mocatta, who charged commission. Most of the bars went to Amsterdam.

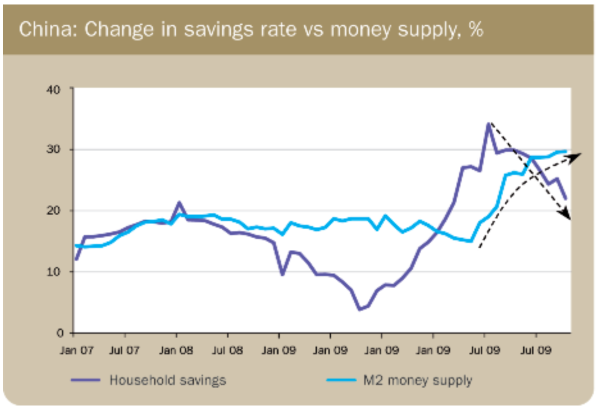
Around this nucleus of the Bullion Office, Mocatta & Goldsmid and refiners were some 20 merchants and exchange houses, which did international business in gold and silver. Several names are familiar – Baring Brothers, Coutts & Co., C. T. Cazenove and, the newcomer, N. M. Rothschild. The most significant, however, was Goldsmid & Eliason, which had close links with Hamburg and Amsterdam. The firm had earlier been involved in an unsuccessful attempt to round up gold in Hamburg in 1797 and ship it to the Bank of England in an effort to stave off the suspension of payments in gold against bank notes. Moreover, the senior partner, George Goldsmid, was the father of young Aaron Asher Goldsmid, himself partner in the brokers Mocatta & Goldsmid and the first witness before the Bullion Committee. To add to the Goldsmid contribution to the 1810 Committee, yet another family member, Abraham Goldsmid, a partner in Goldsmid & Eliason, was called in to give evidence. He proved perhaps the most knowledgeable on the market, rattling off gold prices and exchange rates across Europe. For the Goldsmids, the 1810 Bullion Committee was very much a family affair, with their testimony, along with that of John Humble of the Bullion Office, offering us a fascinating account of the market 200 years ago.

The full story of the 1810 Bullion Committee is in *The Ages of Gold* by Timothy Green, published by GFMS Ltd
http://shop.gfms.co.uk

Timothy Green *has been writing about gold for over 40 years; his first book, The World of Gold, came out in 1968. He was a consultant on the annual gold survey started by Consolidated Goldfields in 1968 and now continued by GFMS Ltd for three decades. His latest book, The Ages of Gold, is published by GFMS Ltd.*

A Day in the Life of an Analyst

By Tom Kendall, Precious Metals Strategist, Mitsubishi Corporation



The expectations of many investors rest heavily on China, from gold bugs who foresee the People's Bank of China stepping in to buy 100s (or even 1000s) of tonnes of gold, to palladium bulls who look forward to rapid growth in use of the metal in Chinese autocatalysts. All must hope that the government does not withdraw liquidity too sharply and that Chinese consumers keep spending rather than saving."

06:40

On the train. Log in to Bloomberg via Blackberry and check levels for metals, energy commodities and major FX pairs. Skim through the overnight reports from colleagues in Asia. Gold pushed up to yet another new high in Tokyo this morning, with spot hitting $1,226.50, but has since slipped back below $1,220. Platinum has been a bit whippy so far, unable to hold the $1,500 level. Gold has been on a phenomenal run since the end of October and yesterday closed above our target high of $1,200, passing €800 in the process. We are now increasingly wary of a more sustained correction than we have seen to date. There is plenty of risk today in the form of the ECB's latest interest rate meeting plus US Federal Reserve Chairman Bernanke in front of the Senate Banking Committee for his renomination hearing. It could be a choppy day.

07.30

Exchange views with traders and marketers on the day ahead. Start deleting the first dozen of the day's unwanted emails, including the now customary update from the LinkedIn networking website offering "unlimited quantities of gold dust" from obscure sources.

08:30

Update my platinum group metal supply and demand model with the latest vehicle production forecasts. The most recent vehicle sales numbers in Japan and North America have been encouraging, but automakers are increasingly talking down expectations for 2010. We are also rather cautious about the prospects for meaningful growth in vehicle sales in Europe and North America.

09:15

Apply for a Chinese visa for a forthcoming visit – six days, five cities, five flights and a train ride should make for an interesting trip. In terms of understanding markets and building relationships, there is still no substitute to visiting a country and customers first-hand.

09.35

Indian contact calls up on instant messenger, asking for view on the direction of gold today. The combination of a soggy start in London and bearish-looking hourly chart suggests the market is likely to head lower through the day, at least until ECB President Trichet speaks this afternoon.

10:30

Meeting with a precious metals producer. Very interesting discussion about all manner of macro and micro trends, production costs as well as metal price expectations for the next 12 months and possible future hedging strategies.

12:45

ECB keeps core financing rate at 1.00% to nobody's surprise. Markets are waiting for Trichet's statement.

13:00

One of the US sales team wants a three-month view on the direction of the silver price to take to a prospective North American customer. When does he want it? Ah, tomorrow, of course.

13:30

Trichet's press conference starts and US initial jobless claims are released. Euro initially ticks higher against the dollar, nosing above $1,220 again, but as it becomes clear that the ECB has delayed any major move on withdrawing liquidity, the single currency is sold off. Gold follows EURUSD lower, dropping to the $1,205 area before finding support.

14:00

Start mapping out keynote presentation on platinum group metals for the Mining Indaba conference, which will be held in South Africa in February 2010. There is a lot going on in PGMs right now and it is important to regularly take a step back from the day-to-day noise of the market and consider the longer-term drivers of demand, particularly with respect to autocatalyst use.

15:20

Bernanke seems to be putting up a pretty good defence of his record so far in front of the Senate Banking Committee. FX markets and gold are quiet for the time being.

16:00

Update my spreadsheet of precious metal ETF holdings. Investors continue to pour cash into precious metal ETFs, with palladium notably continuing to attract a lot of investment. There are now well over one million ounces of metal backing the London and Swiss listed ETFs – one day the exits from the long palladium trade will get very crowded, but not yet it seems.

17:00

Gold has steadied around $1,210 but still feels heavy. Do not recommend anyone establishes fresh long positions here. I make a final attack on the plague of emails.

17:20

That's it. The end of another mixed-up, varied day. My 'to do' list doesn't seem to have shrunk much, but there's a couple of small children at home who quite rightly do not care where three-month gold volatility is heading and who deserve a bed-time story.

Tom Kendall *joined the Precious Metals Division of Mitsubishi Corporation in 2007, Japan's largest trading company, where he is responsible for market analysis, supply/demand modelling and price forecasting for gold, silver and platinum group metals.*

Tom holds a BSc in geology from Southampton University.

If you are interested in taking part in the "Day in the Life of..." series, please contact: amy.berman@lbma.org.uk

Will China Overtake India to Become the World's Largest Manufacturer of Gold?

By Philip Klapwijk, Chairman, GFMS

Since 1995, when India took over from Italy as the world's largest manufacturer of gold (here defined as the fabrication of jewellery, industrial products and investment bars and coins – standard large bars are excluded from this analysis), the country has accounted over the period for around 23% of such global fabrication demand.

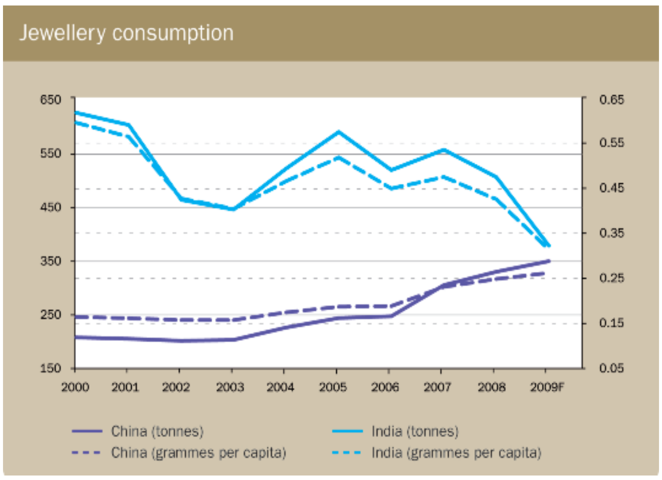
In recent years, though, a combination of falling off-take in India and rising Chinese demand has seen the gap between the incumbent and the challenger narrow significantly. Indeed, we argue in this article that, in 2009, it is probable the gold medal spot will be taken by the East Asian giant, although depending on future trends in the gold price, South Asia's loss may only be temporary.

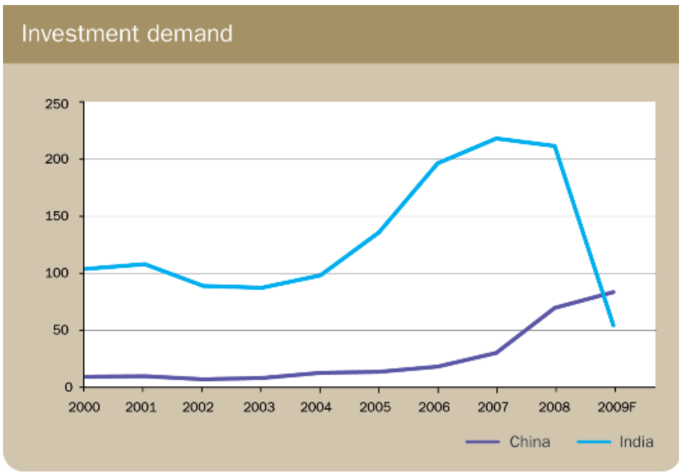
The table below shows GFMS's latest estimates for gold demand in China and India. It reveals that in 2009 – basis data for the first three quarters plus forecasts for the fourth quarter – total demand in China is expected to exceed by a small margin that in India. Although the fourth quarter outcome will be critical to the final result, we doubt there will be a change in the leadership once these numbers have been gathered. This is because high prices in the last two months and in early December have tended to hit demand in India rather more than they have in China.

Greater Indian price sensitivity, in fact, is one of the main reasons behind the convergence in the country's demand and that of China. The Indian market has been under pressure for several years from volatile and rising local gold prices, particularly its key 22-carat jewellery component. Meanwhile, Chinese demand, both in terms of jewellery and investment, has climbed higher and higher, not just in spite of local price strength but, arguably, also to some extent because of it. This is particularly true when it comes to the growing thirst of local investors for bullion bars, which has seen China comfortably overtake India in this category of demand.

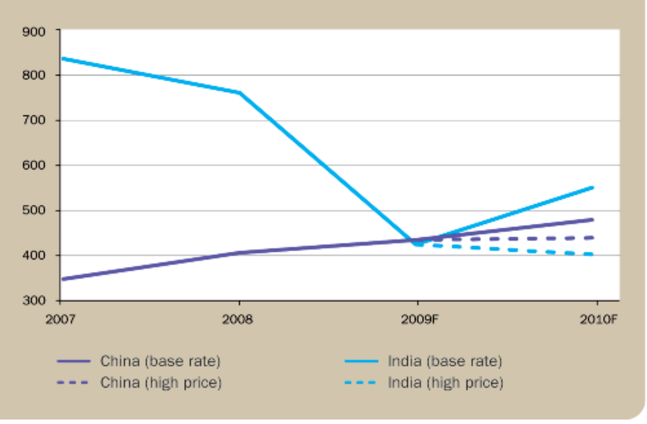
Chinese demand, both in terms of jewellery and investment, has climbed higher and higher, not just in spite of local price strength, but arguably, also to some extent because of it.

Besides the influence of price, other factors have helped to narrow the gap between off-take in India and in China. An important one has been the faster rise in consumer spending in the latter than in the former. The more rapid growth in Chinese consumer spending has been particularly marked this year, with for instance around a 9% year-on-year rise recorded in China (for urban households only) in the first half, compared to an increase of less than 3% in India, where economic growth has been more severely affected by the global economic downturn. In addition, one should bear in mind the influence of China's better overall economic performance in terms of GDP growth and the level of increase in its GDP per capita over many years. Moreover, China's higher savings rate combined with a less open economy (meaning fewer investment





Total gold demand – forecast 2010



alternatives to gold) have also helped to stimulate a stronger trend in investment demand in the country than in India, particularly in the last few years.

Jewellery demand in China has also grown faster than in India in recent years because the retail market in the former is far less developed than in the latter. What this has meant in China's case is a continued massive expansion in the number of retail outlets, with these shops having to be stocked with product, and the greater availability of gold jewellery in a wider part of the country helping to stimulate additional consumption. In contrast, the retail structure in India is by now already fairly mature, at least in terms of the number of points of sale.

Finally, we would argue that social change has been more helpful to demand in China than in India. In the former, a growing moneyed middle class has been eager to establish its status and safeguard its wealth in the form of gold, both in terms of jewellery and, lately, in bullion too. Meanwhile, in India, the rising middle class has, at the margin, de-emphasised the traditional affinity for gold and instead embraced other forms of consumption. The decline in India's per capita jewellery demand partly reflects this, although the shift away from jewellery towards bullion products has admittedly been of greater importance.

Turning to the future, even though there are secular trends at work that we believe will tend to dampen Indian off-take in the future, especially for jewellery, we would be the first to recognise that there is huge pent-up demand at present in the country, which is mainly being held back by very high local prices. Thus, in spite of the stronger underlying growth in Chinese demand for both jewellery and investment, it could be that if prices moderate sufficiently, off-take in the South Asian giant will rebound tremendously in 2010, or if not then, in the not too distant future, allowing India to seize back the number one spot. In the next year or so, gold prices will therefore be decisive in terms of the answer to the question posed in the title of this article. For instance, were dollar prices to drop back in 2010 to an annual average of below $1,000 per ounce (and assuming more or less stable yuan and rupee exchange rates to the dollar), we would be fairly confident of India regaining its mantle. On the other hand, a 'high price scenario' with an annual average exceeding $1,200 would likely see China's lead over India increase, due to the latter's greater short-term price sensitivity.

We would argue that social change has been more helpful to demand in China than in India.

Forecast Gold demand in 2009

(tonnes)	China	India
Jewellery	331	356
Investment	83	53
Other fabrication	18	13
Total demand	432	422

Source: GFMS Ltd. (October 2009, 3-Year Gold Forecast)

Platinum: palladium price ratio

Philip Klapwijk *has over 20 years' experience analysing the gold, silver and PGMs markets, most of this time working for GFMS, which is the world's leading specialist research consultancy on the precious metals markets. (GFMS, for example, is the prime source of statistics on gold and silver markets worldwide.) GFMS became independent of former owner Gold Fields of South Africa via a management buyout in August 1998 and Philip was the company's first Managing Director. Since January 2004, he has been the Executive Chairman of GFMS. Philip is co-responsible for the strategic direction of GFMS and heads up its market research on the official sector, investment and fabrication demand in the Americas, Europe and China. Philip has also helped to oversee GFMS's expansion in recent years into other areas, including base metals and steel research and, most recently, mining consulting and costs. (For more information see: www.gfms.co.uk.) Philip is a frequent speaker at conferences on precious metals and commodities, and the print and electronic media regularly quote his views on the gold, silver and PGMs markets.*

The Eternal Question of Gold in the Official Sector

By Paul Mercier, Deputy Director General of Market Operations, European Central Bank

The following is an edited version of a speech made at the LBMA Precious Metals Conference in Edinburgh on 3rd November, 2009

As a central banker, I am not necessarily the most qualified person to speak about the public sector holdings of gold, for two reasons. First of all, because gold as an asset has been used since well before central banks were invented. The second reason is that we should of course not limit the public sector to the central banks. There are many other public sector entities that are holding gold. I will try to share some thoughts with you. One theme I think will appear in my presentation: despite the gold sales of the past decade gold remains, and will remain, an important asset for the central banks and, particularly, for the Eurosystem.

In my remarks today, I will concentrate on the Eurosystem and adopt a very conventional perspective: let's talk about the past, then the present and, finally, the future. It is maybe a beaten track, but the topic does not really fit with audacious innovation.

Past

Central banks and official international institutions have been major holders of gold for more than 300 years and are expected to continue to hold large stocks in the future. They currently hold about 20% of above-ground stocks. As I told you, gold has been used as a currency and as an asset since well before central banks were invented. Contrary to popular ideas, gold was not the first form of money used to avoid the difficulties and inconveniences of a barter economy. Many other goods have been used as money and some are quite exotic. I remember when I joined a central bank many years ago, I discovered that there were other forms of money than the traditional ones. For example, the shells used by the native Americans or whale's teeth used in the Fiji Islands, or huge stone discs in the Pacific, or even tobacco. In Virginia in the US, tobacco had been the currency for 200 years – for a much longer period than the gold and the gold exchange standard put together. There were many forms of money, but the introduction of metallic money quite early contributed to overcoming some of the disadvantages associated with these forms of money: some were prone to decay, some were too heavy for transport, others were too easy to produce or reproduce. Among the metallic money, two forms were dominant: silver and gold. One remark aside: silver has probably been used on a much larger scale than gold as money.

The use of gold as money is reported before 1000 BC in China and around 700 BC in Lydia, introduced by the now forgotten king Gyges who was ruling the country, while one of his successors is better known: a certain Croesus. I don't need to recall that the European exploration, to use a politically correct word, of the Americas was partly fuelled by the stories of the gold ornaments displayed by Native American peoples.

You will notice, 'en passant', that gold played a role as money well before central banks where invented. But let's not dwell too much on the history of money and allow me to come back to the central banks as gold holders.

It was only very late in history, in the last quarter of the 19th century, that central banks really started to accumulate gold as a reserve. This building-up of gold reserve was particularly important during the two world wars because of all the uncertainties in the world. It reached a peak in the 1960s and, at that moment, the official gold stocks reached a level of 38,000 tonnes, which accounted for about half of the above-ground stocks at that time. At that time, because of the fixed official price expressed in US dollars and its convertibility into dollars, gold was still considered to be the foundation of the international monetary system. Gold provided the 'anchor' to which all currencies of member countries in the system were linked, either directly, or via the dollar.

However, in contrast to the classical gold standard, at that moment, actually since the introduction of the gold exchange standard at the Bretton Woods conference, there was no longer a direct link between gold and the national money supplies. And as some central banks created more money than was consistent with stable prices, after several years of moderate but persistent inflation, the fixed official gold price became more and more unrealistic. Finally, in August 1971, US President Nixon suspended the convertibility of the US dollar into gold. The gold window was closed, and gold became one of the important reserve assets instead of being the centre of the system. That was the past.

Present

So what do we do in the central banks with gold? As I said, it is no longer important from a pure monetary perspective, but it is important as an asset. Let me say a few words about the role of gold within the Eurosystem. The Eurosystem holds 10,800 tonnes of gold, while according to the World Gold Council, the total of official gold holdings amounts to a little bit less than 30,000. So the Eurosystem alone holds roughly one-third of all official gold reserves in the world. But this has evolved over the past 10 years. The share of gold in the Eurosystem balance sheet has decreased during the past 10 years, while the value of this investment actually increased due to the favourable price developments in the gold market.

When we started the ECB and the euro in 1999, the total balance sheet of the Eurosystem was €700 billion. In 11 years, it has increased three-fold. It reached a peak of €2.1 trillion at the end of 2008. During the same period of time, the share of gold in our portfolio diminished, although gold in our reserve doubled in value.

It has now reached €220 billion. As the balance sheet increased even more quickly, the share of gold decreased from about 14-15% of the total balance sheet to 10%. This increase of the balance sheet of the Eurosystem has different sources. One is the evolution of banknotes in circulation. When we started with the euro, there were 370 billion banknotes in circulation. Now we have around 750-770 billion, more than double in 11 years, so automatically of course the balance sheet is bigger. A second element is that the reserve requirements we impose on banks have increased. Banks are obliged to maintain some deposits with the central banks and this is based on their short-term liabilities. As the balance sheets of the banks have increased quite dramatically over that period, automatically their deposits with the central banks have increased as well. The third reason for this big increase in the balance sheet of the Eurosystem of course has to do with those non-standard or non-conventional measures we have introduced in order to cope with the crisis that started on the 9th August 2007 and reached its peak immediately after the collapse of Lehmann Brothers.

Just to give you an order of magnitude, before the crisis, say around June 2007, the

outstanding amount of lending we were providing the banking sector with was approximately €450 billion. We have reached, following the collapse of Lehmann, just less than €900 billion. The idea was to ensure that the banking sector didn't collapse because of the absence of liquidity in the market simply because banks were reluctant to lend to each other. All these three elements, bank notes, reserve requirements and the non-standard measures explain this huge increase of the balance sheet of the Eurosystem from €700 billion in total to €2.1 trillion at the end of 2008. During 2009, it shrank slightly and now our balance sheet amounts to approximately €1,800 billion. This is because those exceptional measures are still present, but the total volume has been slightly reduced. Gold now represents again about 13-14% of our balance sheet. So we are back to the proportions we had in the past, although I repeat that the gold we have has doubled in value over the period. We now have €220 billion of gold in our portfolio.

Why do we have gold? There are voices that regularly say that it is not efficient, so why have it? Central banks, to justify their gold holdings, use different arguments and they don't all emphasise the same points of view. There are four ideas behind those gold holdings: the economic security; the capacity to face unexpected needs; the question of confidence; and the risk diversification issue.

Economic security

Gold is a unique asset in many respects. In terms of physical and chemical properties, it is almost immune to decay, it has a very high density so that small volumes can represent large value, and it is a rather soft metal and can be easily manufactured. Also it is no one else's liability. Therefore its value is not affected by potentially negative behaviour of the issuer. So this is a unique characteristic that is quite reassuring. In fact, gold has maintained its value in terms of real purchasing power in the long run, over history. Although, as regards the real purchasing power of gold, I hasten to add that, of course, past performance is no guarantee for future performance. We may see this next year in Berlin whether this is still true.

Unexpected needs

The second factor that is often used as an argument is the necessity to face unexpected needs. There are some circumstances that are extremely improbable and rare, but if they occur, they can be highly damaging. Those circumstances are, for example, wars or an unexpected surge of inflation (there are some countries that could witness this), or a generalised crisis that leads to the repudiation of foreign debts or even the international isolation of a country. Of course, those situations are rare, but we cannot say that they will never happen, and they are extremely difficult to anticipate or predict. In those circumstances, gold remains the ultimate and global means of payment that is still accepted and it is one of the reasons used by some central banks to justify gold holdings.

Gold can also be used as collateral for borrowing. For example, in 1974, the Banca d'Italia secured a loan that was granted by the Deutsche Bundesbank by providing gold as collateral. In 1991, India received a loan from the Bank of Japan that was also based on gold collateral.

Confidence.

The third element of justification is confidence. Of course, gold is no longer backing the currency in circulation. It was the case under the gold standard when gold holdings maintained the confidence in the otherwise worthless paper money, which was used for practical reasons only. Since the break-down of this system, gold lost its formal supporting role. However, people still instinctively trust gold, which is held for non-monetary purposes in both retail and institutional portfolios.

Under the gold standard, paper money had no value in itself but it was fully backed by gold, so its value was represented by the gold held by the central banks. This is no longer the case in modern central banking, but still one can argue that this notion of confidence is still there. What makes the value of money today is faith. You believe that the money you have is good. There is nothing else. Of course, this faith will be justified or not by the behaviour of the authorities and the central banks, but if there was a little bit of gold behind it, it could contribute to increase this faith in the currency. We are far away from the classic gold standard, but some argue that gold still plays a role and, for example, the IMF itself said recently that the gold holdings gave a fundamental strength to its balance sheet. We know that, for example, some rating agencies are taking comfort due to the presence of gold in the portfolio of either governments and/or central banks.

I recognise immediately that there is a great dose of psychology behind this. As I am neither a psychologist nor a psychiatrist, I will not elaborate further. Although, since the start of the crisis more than three years ago, I think we definitely need more psychologists and psychiatrists in the market, but that's another story.

Risks diversification.

The fourth reason for having gold in the portfolio of central banks has to do with risk diversification. Gold presents very good diversification properties in this respect. It is clear that risk diversification is important for any investor, but it is probably even more valued in central banks. Central banks are usually quite conservative when they invest, and risk diversification is surely something extremely important in their choices. There are several studies that show that when you have gold in a portfolio, you have no systematic and no non-diversifiable risk.

There are a certain number of conditions, for example, a sufficiently long time horizon for the investment and so on, but this is accepted now.

My colleagues who are dealing with gold, or trading in gold, have also conducted some studies. We have three families of assets in terms of foreign exchange reserves. We have assets in US dollars, in Japanese yen and gold. The studies compared several portfolios with different compositions. All portfolios without gold systematically had a higher volatility than any portfolio where there was some gold, and this was statistically significant. It is also true, of course, that there are several optimum portfolios in this respect, but all those that did have good characteristics had at least some gold in their composition. These studies, which are based on a statistical and economical method that is called Standard Mean Variance Portfolio Optimisation, provided similar results to others conducted in other central banks, which reached the same conclusion. Of course, these statistical and econometric studies are not sufficient to determine how much gold we should have in our portfolio in the long term. We also need a more fundamental approach to determine exactly what we should have, but still there is this idea that gold contributes to a good risk diversification of the portfolio.

So those four factors, the economic security, unexpected needs, the notion of confidence and, finally, risk diversification explain why gold is important in the portfolio of the central banks.

A big thank you to all who took part in the impromptu photo session in the Leather Room of The Sumptuous Prestonfield House Hotel. As promised a sample of some of the portraits taken. For more information on getting prints go to www.ionriver.com/lbma

Mark Pickthall is a designer, art director and photographer with a long association with the LBMA having created the LBMA logo The Alchemist and all the Conference material since Dubai.

pickthall@ionriver.com
07885 345 247

Future

I would like to look at the future and address two issues. The first one is the so-called CBGA (Central Bank Gold Agreement) and the second one is what will be the place of gold for central banks and authorities in general in the future.

First of all, the new CBGA was announced in August 2009 and is the third agreement of its type. In 1999, the signatories of the first Agreement (15 central banks: the Eurosystem, the Bank of England, the Swiss National Bank and Riksbank in Sweden) wanted to minimise the adverse impact of their own sales of gold. Therefore they decided to set up a formal and transparent agreement, and because the terms of the agreement were published, the market was well aware of the intention. Among many things, they communicated first the idea that gold would remain an important element of global monetary reserves. They said that they would sell gold, but it wasn't their intention to dismiss gold.

The Agreement also stated that central banks would not enter into the market as sellers except for those sales already decided and, for these, there was an agreement not to exceed more than 400 tonnes per year, which was a total of 2,000 tonnes over the whole life of the Agreement, which was five years. At that time, the gold production was running at around 2,500 tonnes per year, so this additional supply via the sales of the central banks meant an increase of roughly 16%. One could have expected a negative reaction on the prices, but in the first three trading days after the Agreement had been announced, the spot price increased by 14%. So the perception was bullish rather than bearish, and the idea was simply that the market was better informed. Therefore there was suddenly much less uncertainty related to possible sales by central banks, and that contributed to the standardisation of the market.

During the five-year period, the signatories indeed sold those 2,000 tonnes. What was important also was the way these sales had been organised. The big sellers under the first Agreement were the central banks of Austria, Portugal, Switzerland and England. As an example, between 2002 and 2004, the Bank of England sold half of its stock of gold, roughly 300 tonnes. The others, for example, the Swiss National Bank, waited until the Bank of England had sold the lion's share of this amount before entering itself very actively in the market. The Banco de Portugal waited until the very end of the Agreement before starting to sell. All this was co-ordinated and contributed to avoiding any shock on the market. In total, the reduction of gold held by those 15 central banks during those five years was approximately 2.5-3% per year. In 2004, the Agreement reached its end and it was decided to enter into a new Agreement, not exactly with the same central banks – there were a few changes – but the Agreement was reconducted. There was a difference. It was announced that the self-imposed ceiling would no longer be 400 tonnes but 500 tonnes, and therefore the total would be 2,500 instead of 2,000 tonnes over the five years. This could have led to some bearish reaction, but it was not the case, simply because the market now was reassured that those sales could be well organised and should not have a negative impact on the market.

I should say that the signatories sold only 1,875 tonnes at the end of this second Agreement, much less than was initially agreed. Over the five years of the second Agreement, the price of gold has doubled, which is not bad for the gold holders. It is amazing to observe this, because according to the statistics provided by the World Gold Council, in 1998, there were 33,500 tonnes of gold in the public sector holdings. At the end of 2008, there were 29,800 tonnes. So a reduction of 3,700 tonnes is the fastest and biggest decline ever observed in gold holdings. I think the CBGA contributed to that; in spite of this, the price of gold increased instead of declining.

In September 2009, the CBGA No. 2 reached its end. It has been decided to enter into a new Agreement – again for a five-year period – which will end in September 2014, again with a ceiling of 400 tonnes per year – 2,000 tonnes in total. Since the ceiling of the former Agreement was not used, it wouldn't have made sense to maintain such a high ceiling. Another change is that the IMF has also announced that it will sell approximately 400 tonnes in the coming year. It has been stated in the Agreement that those sales can be accommodated within the ceiling decided by the signatories of the CBGA. Therefore, even if the IMF is not a signatory of this Agreement it will be treated similarly. This is surely an element that contributes to stabilising the gold market.

So what about all the central banks in the world? Will the amount of gold held by the official sectors globally continue to decline or not? It is very hard to make any forecast in this respect. Forecasts are always difficult, especially when they concern the future of gold, but there are some elements that can help us to make up our mind. First, it is clear that risk diversification is more and more an issue nowadays, and we have seen public sector authorities, mainly sovereign wealth funds, that have quite seriously changed their approach and diversified their investment, buying real estate or commodities. We have even seen some of them buying raw materials to secure the needs of their own country and so on. So, it is not excluded that gold can also benefit from that diversification. The CBGA signatories as a group have around 50-55% of their foreign reserves in gold. This ratio has increased in the past seven to eight years with the increase in gold price (which more than offset the effect of gold sales). In terms of volume, the Eurosystem, with 10,800 tonnes, holds a third of all gold held by the public sector. The top five European central banks in terms of gold holdings are the Deutsche Bundesbank with around 65% of its reserves in gold (based on World Gold Council and IMF statistics and end of month spot gold prices). Banca D'Italia and Banque de France are above 60%, the Nederlandsche Bank around 50% and the SNB around 30%. What those central banks will do throughout the duration of this CBGA is known, so there will probably be a small reduction in volume, but not in value.

So what about other reserve-holders in the world? Periodically, the biggest reserve-holders do not really have gold. China and Japan, for example, have only 2% of their foreign exchange reserves invested in gold. For Russia or Taiwan, the proportion is slightly higher but still well below the figures I mentioned for the signatories of the CBGA. So, I don't think I take a huge risk if I anticipate that those countries are very unlikely to appear on the sales side of the market. We might observe a stabilisation, if not an increase of gold in the official reserve.

This leads to my conclusion. There are three elements that I wanted to make very clear. The first one is that the Eurosystem holds more gold in value now than 10 years ago, even if it has sold quite a lot of gold. The second is that even if gold prices can be volatile, gold really contributes to the diversification of risk in the portfolio, particularly that held by the official sector – even if some central banks will continue to sell gold and even if a new potential seller, the IMF, has emerged. I will not conclude with any kind of certainty that gold holdings will continue to decline in the coming years. Thank you for your attention.

Paul Mercier *is currently Principal Adviser in Market Operations at the European Central Bank after having served as Deputy Director General for 11 years. He was previously Head of Financial Markets of the European Monetary Institute (EMI). In this capacity, Paul Mercier participated in the design of the monetary policy and foreign exchange policy instruments of the European Central Bank.*

2009 LBMA Precious Metals Conference

By Ruth Crowell, Commercial Director, LBMA

In 2008, delegates predicted the price would be $956.50 and were $105 off the actual price of $1,061.00. This year LBMA delegates predicted that the gold price will be $1182.50 by the time of the next LBMA Conference. Let's hope they were sufficiently bullish this time round.

The 2009 LBMA Precious Metals Conference was held in Edinburgh, Scotland during the period 1st -3rd November, 2009. The Conference had originally been planned for Lima, Peru, but the venue was changed in early 2009 due to the financial crisis. The dates were however kept the same and delegates enjoyed 'typical' Scottish weather, which was much improved by drams of whisky by the fire. The Conference attracted a total of 368 delegates, from over 35 countries, which far exceeded the Public Affairs Committee's and LBMA Executive's original predications in early 2009.

The Conference opened with the Welcome Reception, sponsored by the Wold Gold Council which was held in the Balmoral Hotel. After the first evening of networking, the Conference speeches began with the Opening Session featuring keynote speaker Paul Mercier of the European Central Bank as well as Michael Cross from the Bank of England. Paul Mercier consequently won the prize for Best Speaker; followed closely by Jessica Cross of VM Group (these speeches are reproduced on pages 8 and 14 respectively).

The Conference Dinner was held at Prestonfield House, a stately home just outside of Edinburgh. Here delegates enjoyed networking at the Cocktail Reception sponsored by the Silver Institute and the LPPM as well as award winning Highland Dancers and a pipe band.

The Tuesday afternoon saw the most popular session, The Future of the London Precious Metals Market. Phil Clewes-Garner of HSBC, Raymond Key of Deutsche Bank and Neil Clift of JPMorgan participated in a US Presidential style debate moderated by Steve Branton-Speak of Goldman Sachs. Topics for debate included the future role of the LBMA and Cleared Forwards amongst others. The Silver Session and the PGM Sessions also proved very popular.

Our congratulations and thanks to all the speakers involved in the Conference.

The next LBMA Precious Metals Conference will take place in Berlin, Germany during the period 26th-28th September 2010.

Hope to see you there!

Prospects for Silver Supply and Demand

By Jessica Cross, CEO, VM Group

The following is an edited version of a speech made at the LBMA Precious Metals Conference in Edinburgh on 3rd November, 2009

Preamble

Thank you to Stewart and the LBMA for the invitation to talk. I'm delighted to talk about silver. I've always been concerned that with my history as a gold analyst, I've been slightly typecast. Really, the VM Group now does not only base metals, precious metals, but we also do energy, renewable, carbon trading and soft commodities. So we are not Virtual Metals any more, we really are the VM Group, and it's nice to talk to an audience like this about something other than gold.

If we are talking about typecasting, I think silver has been a classic. It has always historically played second fiddle to gold in absolute price level terms and really how it is perceived as an investment vehicle. It has been seen as poor man's gold. There have been a number of reasons for this in the supply/demand balance and I'm going to address that today. But what I'm going to talk about today is that, in fact, the silver market is showing structural improvement. The state of affairs in the long term is going from strength to strength.

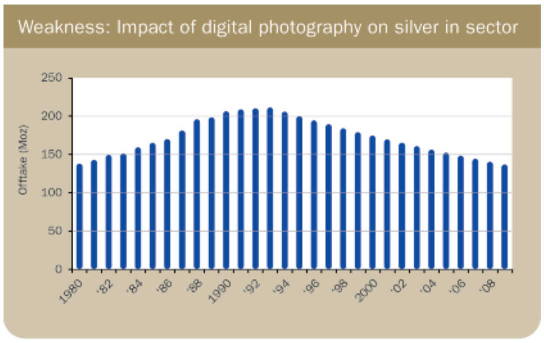
Before I show you where I think these strengths are coming from (and I think they are going to change the market irrevocably), let's just take a look at the historical structure of the silver market to see where these weaknesses have come about.

Weakness

This is our line item of the silver supply/demand balance. In our research, we've identified three areas of chronic weakness. It's on the primary supply side, on the recycling, particularly photographic, and it's on the photographic and the demand side of the equation, and I'm going to talk a little bit more about this. We also think the strengths are coming from industrial and investment. I'm going to return to this because this is really where the interest lies.

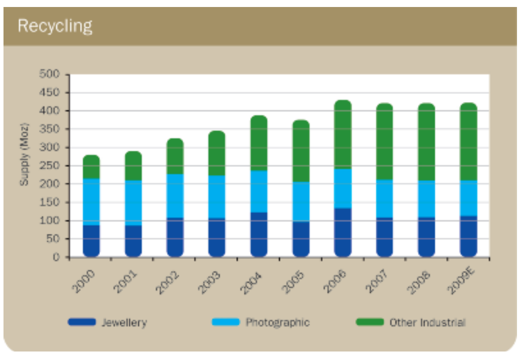
Our first weakness as we see it in the silver market is that 65% of my supply is either co- or bi-product production as a natural consequence of the mining of copper, lead, zinc and of course gold. This really means two things. Silver gets mined irrespective of the silver price. When the world wants base metals as it has done in the last five years, with copper, lead, zinc, and when the world wants gold, and it always seems to want gold, the silver output just happens. Secondly, as a consequence of this, you cannot construct a meaningful cost curve of primary silver production. It implies that it is not possible then to hone in on the marginal costs at producer level, which will give you an indication of the silver price, beyond which it is unlikely to fall, before mine production contracts in logical response.

The second weakness is the traditional end users of silver and the smoke-stacked industries. Over time, they have been responsible for the generation of a lot of recycling, which comes back into the market. The most obvious sector is the photographic. This slide shows photographic since 1980, which we've modelled in a database. This sector has been relentlessly undermined by the technical substitution in the form of digital. This has been going on now for almost two decades. Originally, there were doubters who swore blind that this would have no impact on the demand for silver in this sector. But like waves undercutting the base of a sand dune, the consequences were inevitable, and this chart here shows what's been going on. Less and less silver has been consumed by this sector, and the chart shows our estimates for off-take here. You will agree that this has not been a growth industry.



Digital Photography

As I said, the photographic industry is also a very efficient recycler of metal, with the exception of medical x-rays, which have to stay on record for a certain number of years. Silver was and still is washed out of the film during the manufacturing and the processing of the film, and this can actually occur quite swiftly after the film has been manufactured. As this chart shows you, it's not only the photographic industry that is an effective recycler of silver; there are other industrial applications such as batteries and electronics, which do exactly the same. And of course, don't forget the generation of silver jewellery wearers, who tend to buy the stuff, wear it, recycle it, rebuy it, and you've got this circle going around and around of recycled metal in the industry.



Recycling

So, on balance, we reckon that, annually, you're looking at probably 400 million ounces of silver returned from the recycling to the industry. Such are these levels of recycling that we have to accept that these sectors are not smoke-stack. The silver embedded in these sectors is readily available. It's liquid, and it's available for secondary return to the market. This has all weighed heavily on the price and countered against the metal over the years.

Note this market is adjusting, and while the current supply/demand balance has yet to reveal this evolution, there is a sea change which is detectable, and it's going to become more and more apparent in the next five to 10 years. The adjustment is not coming from the

traditional producers and consuming sectors as we've discussed here. Much of that is ops normal, silver will remain a current, a co- and bi-product of other mining of metals. Silver demand in the photographic industry will continue to shrink, although the good news here is that, for every ounce silver has less going into photographic, you've got less available for recycling from that sector. That really is very cold comfort.

Times are a-changin'

So where are these changes coming from? They are coming from silver's unique properties as a biocide as well as superior conductivity of electricity current. The interesting thing is that there are many worries and woes in the world today; in fact, they are playing directly into the hands of silver. The metal seems to be in the right place at the right time. You take a look at it post-9/11, there are heightened security issues. World, particularly Western world, obesity is a major problem, as well as general healthcare issues. There is a drive to perfect cleaner sources of power and heating. There is a call for energy efficiencies and sources of cleaner water, and there is a general call to clean up the world as a whole. You look at these worries and you name them. Silver is there with a potential solution.

Projected demand

So let's take a quick look. I'm going to give you a final picture of where we think the projected demand is coming from, by first building up the demand in each sector. Watch the left hand axis of all these charts in millions of ounces.

Radio frequency devices

The first thing you have is on security and stock control. You have got silver used in what is called radio frequency identification tags. These are tiny little gizmos that are taking over from bar codes. Apart from controlling stock of goods and the movement of those stocks, they are used now to track human beings.

The Chinese have just committed $6.0 billion to a massive programme to invest in these tags, not only in the ID for every single Chinese citizen, but also for the issuing annually of billions of transport tickets, to name a few of the applications in this huge programme.

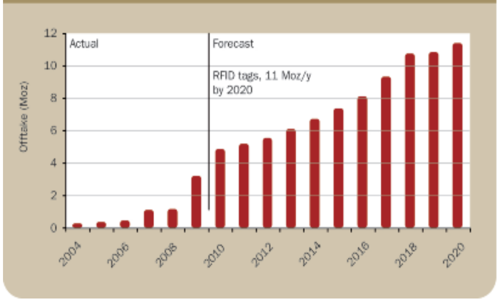
China isn't the only country. You get a new passport from any of the EU countries today, you take a look, there's a little tag in it and all these contain a bit of silver.

We reckon that at current growth rates, these tags manufacture will exceed 30 billion units by 2020, up from approximately 7 billion units today.

With the average loading of about 10 milligrams of silver per tag, this means more than 9 million ounces of silver committed, up from about 2.3 million ounces currently. Looking further beyond 2030, the use of these tags is likely to become universal, perhaps running into the hundreds of billions of units manufactured every year. So we're saying you're looking at minute amounts of silver going into each unit, but a huge amount of these units being manufactured.

> *The interesting thing is that there are many worries and woes in the world today; in fact, they are playing directly into the hands of silver. The metal seems to be in the right place at the right time.*

Radio frequency identification devices



Solar and Mirrors

Let's add to this another really big one. This is solar and mirrors. The solar panel industry recently has been showing exponential growth. With the drive to find clean sources of heat and energy, solar is without doubt in the running. Yes, we agree, the capital costs are still very high relative to traditional sources but the longer-term benefits are coming to the fore, and each crystalline silicon solar cell contains approximately 1.2 grams of silver per watt of energy. This sector, like all sectors, took a big hit in the recession, but since then, there have been announcements by the US, India and China to raise their respective solar energy capacity, and it seems to be lifting the market. This is where we are seeing this phenomenal growth.

Solar and mirrors

India has announced plans to increase its solar output to 20 gigawatts per annum by 2020 from virtually zero at the moment. The Chinese have announced plans to up capacity from 5.5 gigawatts to 30 gigawatts by 2020 and, in fact, the US has announced the same.

So global projections of solar generating capacity by 2020 are currently between 20 and 40 times that of today's 13 gigawatt capacity installed. We see some very optimistic forecasts saying that the solar power industry could account for as much as 20% of global generation by 2050.

We can't offer an opinion about this, we think the jury is out. But what we have done is adopt a much more conservative approach to looking at the forecasts. We nevertheless do forecast that we're going to see an average compound growth rate of at least 15% per annum between 2010 and 2020, meaning that installed capacity in solar is going to quadruple at the very least.

This will require, after taking into account increasing market share of non-silver usage in solar, which there is, and the gradual improvement of silver loading efficiencies in these panels, we're looking at about 50 million ounces of silver per annum by 2020, up from currently about 18 million ounces. It is a big one.

Wood preservatives

Let's add to this another one. It's wood preservative. Plans to replace arsenic in wood preservatives have been afoot since 2004. This is not new. Back then, almost 10 years ago, the industry recognised in conjunction with the US Environmental Protection Agency, the need to phase out copper chromide arsenate (CCA). There were growing health concerns about the use of this product, because its primary constituents are chromium and arsenic. Silver is a leading contestant to offer a non-carcinogenic product, but one that still inhibits the growth of mold and fungi, and also kills termites that munch away at wooden constructions. This product has already been ready for commercial roll-out for some time now, and it has been in for licensing with the US authorities. For some reason, the launch appears to be delayed. We are watching this very closely. There is little news forthcoming about this end use, and the market is

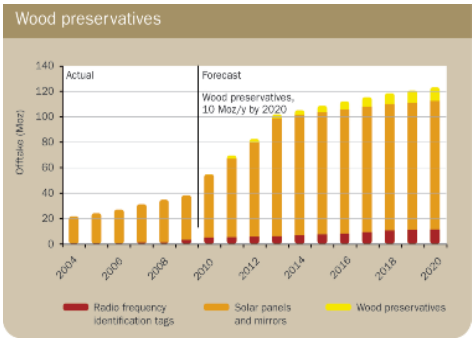
The conference by the industry for the industry

The LBMA Precious Metals Conference 2010

26 - 28 September 2010
The Hotel Adlon
Berlin

The London Bullion Market Association
13-14 Basinghall Street
London
EC2V 5BQ
www.lbma.org.uk
conference@lbma.org.uk
T: +44 (0) 20 7796 3067

There's a place for all market players at the LBMA Conference - registration opens June

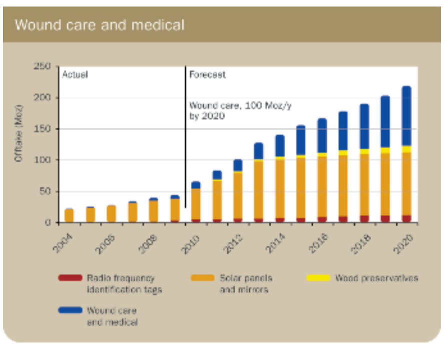


incredibly tight-lipped about it. It is at the licensing stage and so no one really wants to talk about it. If it is successful, it could be a really big market for silver, especially as regards to North America and Europe. In addition, we are also aware that there has been a lot of R&D work in trying to reduce the amount of silver that goes into this solution; the original solution took about 1% silver and there's been a lot of work done trying to get it to 0.5% or 0.1% silver in solution, with the same effectiveness as a wood preservative.

So our forecasts here for silver are extremely conservative. We have seen other people calling for at least 100 million ounces of silver into this sector annually, and as you can see from what we've done here – we've included it in yellow – we're a lot more conservative, but we are watching very closely to see what happens.

Wound Care and Medical

This is another huge potential market. Obesity makes headlines every day. It's not pretty, and as people in the Western world tend to live on average for longer years, these populations are also getting fatter and, as a consequence, more sedentary. This is obviously a major problem throughout North America and increasingly throughout Europe. What is happening is the sedentary lifestyle of very obese people is causing chronic skin problems, which need to be treated on a long-term basis. Silver as a healing biocide is proving very effective for these band-aids and care products, but also for bandages over large surface skin area. Reports confirm that skin lesions of this nature heal much faster and cleaner under silver bandages. Of course, the application was very swiftly moved into the realm of not just the sedentary and the obese. If you go to your local pharmacy, you will find a range of silver-based healing products, which, in fact, are not that much more expensive than your traditional products.

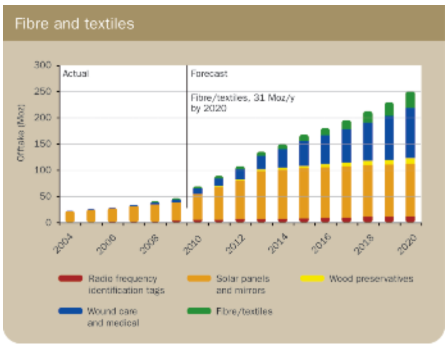


Fibre and Textiles

Apart from wound care, silver is finding medical applications in a whole host of other equipment. It's astonishing. It's in catheters, pacemakers, heart valves, suture rings, feeding tubes, orthopaedic implants, even through to silver-impregnated surgical clothes and hospital bed linen. This sector is becoming a massive consumer of the metal and we think this is really going to begin coming into its own from about 2014 onwards.

While we're talking about things like silver-impregnated bed linen, you go automatically into the textile industry. Silver-impregnated textiles were originally introduced into the foot sector. Silver inhibits the bacteria that causes body odour generated by heat and sweat. Sorry to be so basic this morning, but you know, it's a fact of life. The benefits of this were soon introduced into the much wider leisure wear sector and consumer demand for these products has been enormous recently. So you can now get non smell-generating shoes, socks, insoles, boots, gloves, sleeping bags, back packs – you name it. More recently, the textile industry has been producing advanced fibres as thermal insulators, and therefore opening up a whole wide new potential market in commercial and domestic protective clothing, particularly in cooler climates.

Here again, our forecast for silver

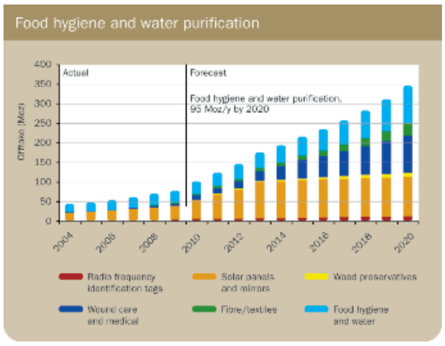


demand, which we show in this slide in green, in the textile industries is very conservative. We just don't know yet what the potential is, but the applications are there and they are starting to come through now.

If you take a look now at the figure, we are almost up to accumulatively 350 million ounces of silver per year, by the year 2020.

Food Hygiene

The next one is food hygiene, which is becoming a very important consumer of the metal. Again, silver is acting as a very effective biocide, through the slow release of silver ions supplied to the exposed surfaces. Silver coatings, as they control the spread of bacteria, are being applied not only to kitchen surfaces but also to vending machines, mass-market food production packaging units, and the technology is now being applied to the inside of food containers and storage. So, you've got it now in paper cardboard cartons,



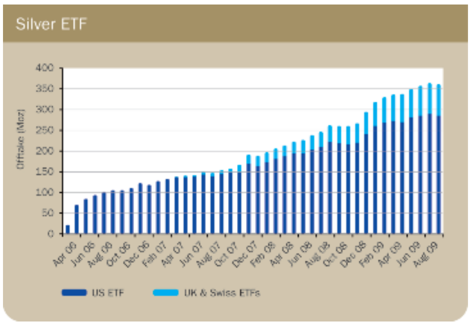
plastic and paper food wrappers, and even the inside of milk cartons. Again, the amount of silver going into each of these industrial products is absolutely minute – it's measured in microns on a surface area – but your potential surface area is absolutely enormous, and the mass roll-out of this sort of equipment in goods implies a good deal of silver every year destined into these sectors.

Finally, as part of the food hygiene, I have to refer to water purification. In a sense, it isn't a new one, but it has been used for a long time in the purification of drinking water as well as swimming pool water, particularly in the US. The market is big and there are millions of semi-portable water purifiers sold in the US annually, and what these things do is just remove the bacteria, the chlorine, the lead and the particulates to render it potable.

We have actually maintained that potable water in the right place at the right time is going to become probably one of the world's next big issues, and the global need for quality water in the right quantities is going to become an increasingly pressing concern. Could silver be better placed in this situation? No, it is ideally placed.

So there you have it, there's our demand coming through on our forecast with these end users. In fact, what I've done is left the best until last. The strongest argument for a better silver market and a stronger price is that these end users are set to pick up the demand slack left by the shrinking photographic industry. But unlike photography, these end users will not generate vast amounts of recycled metal. If you take a look at them, it's just impractical to try and recycle these things. Hospital waste is

incinerated, it is not recycled. Wood preservative can't be scraped off the wood and recycled. The same applies for fibres and textiles. Clothes tend to be trashed and not recycled, and so on. So what we're saying is we've got smoke-stack industries evolving here, and this means that the metal is going to be taken off the market for good.



The Future

You superimpose this good news onto the tonnages that have gone into the ETFs and you can see from this slide the underlying strength of the market that is now being emoted, and why this is now justifying higher prices and prices that could be sustained.

This price chart is probably very familiar to all in this room. Yes, it took a cold shower during the financial crisis as all commodities did, but the important thing about this chart is how the silver price has subsequently recovered.

What is the upshot? What is VM Group saying about the whole silver supply/demand balance? We say it is showing structural improvement. Yes we still have a problem with mine supply, which is not price elastic, and there's still a lot of recycling – there's no doubt about that – but what we're seeing is a broad range of new end users coming in, which do not add to levels of recycling and they also begin to start looking like they are going to take large volumes of silver off the market. We expect, therefore, that the gold/silver price ratio is going to contract and narrow. Most importantly, we actually maintain that the higher silver prices that we're seeing are indeed sustainable in the long run.

Thank you.

Jessica Cross *is the CEO of VM Group, formerly Virtual Metals, the successor company to Crosswords Research and Consulting, which she formed in 1994 to provide gold research to the international metal and mining industry. In 2000 with mining company underwriting, Jessica expanded Virtual Metals to provide research and insights for 30 corporate clients.*

Prior to Virtual Metals, Jessica was employed by RTZ Corporation Plc, Consolidated Gold Fields Plc, Gold Fields of South Africa, and Anglo American Corporation as a precious metals analyst in positions of increasing importance; a career spanning twenty five years. At Goldfields she was responsible for the market analysis and forecasting of market conditions for the Company's Northam Platinum Mine. At Consolidated Goldfields she co-authored the authoritative annual Gold Survey.

DIARY OF EVENTS

FEBRUARY

9-12
Mining Indaba
Cape Town
T: +1 314 824 5515
www.iiconf.com

10
Precious Metals Investment Summit
London
www.objectivecapitalconferences.com
Tel: +44 (0)207 073 2691
Fax: +44 (0)203 137 0076
Email : events@objectivecapitalconferences.com

25
LBMA Annual Party
London
T: +44 20 7796 3067
www.lbma.org.uk

MARCH

18
Rare Earths, Speciality & Minor Metals Investment Summit
London
www.objectivecapitalconferences.com
Tel: +44 (0)207 073 2691
Email : events@objectivecapitalconferences.com

23-27
Asian Mining Congress
Singapore
www.terrapin.com
T: +65 6322 2700

29-31
Mines and Money
Hong Kong
http://www.minesandmoney.com/asia/

APRIL

26-28
The MMTA's International Minor Metals Conference
London
Email : sales@metalevents.com
Phone : +44 20 7840 014

MAY

4-5
Adu Dhabi Global Mining Investment Conference
Millenium Hotel, Abu Dhabi
Email : gabriel@objectivecapital.com

18-20
International Gold Symposium
Peru
mjaramillo@snmpe.org.pe
T: +51-1 460 1600
F: +51-1 460 1616

26-27
Shanghai Global Mining Investment Conference
Shanghai, Shanghai

28-29
London Global Mining Investment Conference
Stationers' Hall, City of London
Email : gabriel@objectivecapital.com

JUNE

12-15
IPMI Precious Metals Conference
Arizona
www.ipma.org.uk

23
LBMA AGM
London
Armourers Hall
T: +44 20 7796 3067
www.lbma.org.uk

LBMA Certified Reference Materials

Silver Project - Final Update

By Stewart Murray, Chief Executive, LBMA

Gold

The LBMA Gold Certified Reference Materials (CRMs) have been distributed to all those companies which ordered them. Additional sets can be ordered from the LBMA Executive at a price of US$4,500* per set (plus the shipping cost and the value of the contained gold at the time of order).

Silver

The silver side of the project is now in its final phase. The materials have been subjected to homogeneity analysis by the manufacturer (Krastsvetmet of Russia) and the Rand Refinery. Analysis of the results using ANOVA software has proved to the satisfaction of the Steering Committee that the materials meet the criteria for homogeneity. Shavings from the materials were sent to eleven refiner laboratories in seven countries in early November with a request that they analyse the two materials for the 21 impurity elements contained in them and submit their results to the Executive by the end of December. The results will then be sent (identified only by code letters) to the Steering Committee which will scrutinise them to determine which data should be included in the calculation of the reference values which will appear on the final certificate.
Good Delivery Refiners which placed orders in advance will be invoiced for the cost of the RMs in January and it is expected that shipment will take place in February.

The LBMA silver CRMs consist of a set of two rectangular blocks – AgRM1 and AgRM2 – weighing approximately 50 grams and containing different levels of 21 elements.

Ordering LBMA Silver CRMs

The cost for these materials is in two parts: firstly, a fixed cost (unlike the case of the gold RMs, this includes the cost of the contained metal) and secondly the cost of shipping and insurance. In view of the relatively insignificant cost of the contained silver, shipping costs will be much cheaper to most destinations as it will not be necessary to use security carriers.
Fixed cost per set (one unit of AgRM1 plus one unit of AgRM2)
LBMA Good Delivery Refiners, Members and Associates: US$3,750*
Other purchasers: US$4,500*

* Plus VAT where appropriate
Additional cost for a set reference materials in the form of shavings: US$600

The LBMA - New Years Resolutions

Editorial Comment by Kevin Crisp, Chairman, LBMA

Firstly, may I wish all LBMA members and readers of the Alchemist a very happy, healthy and successful New Year. We all anticipated that 2009 would be a challenging year and we were not disappointed!

Yet amongst the continuing problems in the global economy, came opportunities and a further increase in interest and activity in the precious metals markets. Our Conference held in Edinburgh in early November was a great forum to discuss many of these issues and gave many market participants a chance to address some of the forces that are driving our industry. We were overwhelmed by delegates and our next venue will be larger, be assured. It is very much to the future and some of our current initiatives that I would like to mention in this Editorial as I believe that 2010 is going to be a very important one for our markets, not least for the LBMA and for the other companies and Associations that comprise the totality of our market.

Nothing would happen at the LBMA without the efforts of the Executive and my thanks also to the members of the team for their exhaustive efforts this past year. Also to the LBMA Management Committee, and to the Committee Chairmen, and members for all their hard work over the past year. I would point out that in today's mobile labour markets there are inevitably resignations from Committees and we always welcome those interested in supporting the LBMA by sitting on one of our standing Committees. If you want to find out more, please contact the Executive.

At this mid-point in my tenure as Chairman of the LBMA I would like to briefly discuss what has been achieved to-date since our June AGM, but more importantly, to talk about our plans for the future. As everyone in the market is aware there has been, and continues to be, a great deal of discussion about the future structure of the precious metals market. In particular, that discussion is focusing on the most appropriate and efficient manner for us to manage an ever growing range of issues in the best interest of the entire bullion market and its users.

As Stewart Murray elaborated in the October *Alchemist*, ten years ago the LBMA had a part-time Chief Executive and one full-time staff member. Today we have five full-time employees and following a review instigated by my predecessor, the LBMA is now in the process of hiring an Operations Director bringing the total to six. He or she will take responsibility for much of the LBMA's day-to-day administration and we hope to make the appointment early in the New Year.

At the same time Ruth Crowell has been appointed as the LBMA's new Commercial Director. This new distribution of responsibility will enable our Chief Executive to focus on key market issues for 2010 including the commercialisation of the Good Delivery List and the expansion in membership by encouraging suitably qualified institutes in other countries to join. All of this puts the LBMA in a much stronger position to service the needs of the market and maintain the high standards that are expected of our industry.

Communication is a key part of the LBMA's responsibility to its members. The annual Conference is central to that effort and planning is now well advanced for the next, which will be in Berlin at the end of September. We have already tentatively fixed a date for the 2011 Conference to help coordination of our event with other events in the market.

Given our increasingly global membership it is very important that the LBMA considers the needs of our international members. We continue to receive foreign visitors and delegations at the LBMA offices in London. However, we are also reaching out and our Chief Executive will attend events around the globe in 2010 to help communicate the LBMA's role, the importance of the Good Delivery List and the benefits of LBMA membership.

We would also like to encourage regional groups of bullion dealers and market users to form and meet regularly to discuss regional market issues and are looking at ways of supporting this process, possibly through the creation of regional 'LBMA Ambassadors'.

Our website has improved substantially but there is a great deal more that can be done and we intend in particular in 2010 to develop the Membership Area of the website. Again, we welcome suggestions on this subject.

By now I think that everyone in the bullion market is fully aware that we are now well advanced in a process to commercialise some of the data produced by the LBMA's market makers as a way of ensuring data ownership remains with the market. The Data Committee received submissions from nine organisations and will make a decision on this early in the New Year.

In summary, 2010 looks set to be another exciting year that will bring plenty of challenges along the way. There are many critical projects still being worked on by the Association embracing regulatory, environmental and taxation issues. The Gold Reference materials project has been a great success and the Silver Reference materials will be available shortly and a further extension of the project is being considered. For the LBMA, we anticipate a very busy time and are investing the Association's improved financial resources for the future of the membership. We believe we have a very solid platform but there is no complacency as the world is moving fast around us. We will keep our members fully apprised as things develop, through the Alchemist, the LBMA website and hopefully by meetings with members of our expanded Executive. ■

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

• Bayerische Hypo- und VereinsBank resigned with effect from 31st December 2009.
• Investec Bank plc resigned its membership with effect from 31st December 2009.
• Mann Financial Ltd changed its name (some time ago!) to MF Global UK Ltd.

Associates

• Oriental Expressions DMCC of Dubai was admitted as an Associate on 20th November 2009.
• Sovereign Bank resigned with effect from 31st December 2009.
• Noble Jewellery resigned with effect from 31st December 2009.
• Alex Stewart Assayers changed its name to Stewart Inspection and Analysis Ltd with effect from January, 2010.

The total of all membership categories at the end of 2009 was 127 companies, just one less than the corresponding figure at the end of 2008.

GOOD DELIVERY LIST

The gold refinery of Korea Zinc, located in Onsan, Republic of Korea, was transferred to the Former List on 20th November 2009. The company's silver refinery, however, continues to be listed.

There were no additions to the Good Delivery List during the past quarter although a number of refiners have submitted revised bar marks, details of which have been circulated to the London vaults.

COMMITTEES

Management

The Management Committee has continued to meet monthly during the past quarter. The Committee welcomed one new member, Simon Churchill of Brinks, who was co-opted onto the Committee in November, following the earlier resignation of Gerry Schubert.

The question of data commercialisation was again a major focus of the Committee's attention in recent months. Since mid-September, the LBMA Executive has been manually compiling a daily forward curve for gold based on contributions from all the forward market makers. This is essentially to demonstrate the viability of this approach. Once decisions are made about how this data will be distributed, it is expected that an automated system will be put in place. The Data Sub-Committee has received submissions from nine companies and will make a decision in early 2010.

Physical

The project to allow electronic weighing of gold as an alternative to the beam balance is approaching its successful conclusion. The prototype scale which has now been demonstrated to the satisfaction of the market is now undergoing type approval by the manufacturers in Germany. When this has been achieved, hopefully by the second quarter of 2010, a full description of the scale and indeed the whole project will be included in a future edition of the *Alchemist*.

The Executive has been kept busy processing six applications for Good Delivery Listing and there are a further eight companies which have expressed a serious interest in applying. In parallel, the proactive monitoring programme continues and we have almost reached the end of the second three-year cycle. At the request of a number of companies, the LBMA now issues a formal certificate to recognise a refiner's success in meeting the requirements of proactive monitoring.

The VAT Sub-Committee has met on more than one occasion and also with HM Revenue & Customs to discuss the implications for the market of the changes in place of supply rules that will be introduced across the EU in January 2010.

Reference Materials Project

The gold reference materials produced earlier in the year have now been distributed to all advance purchasers. The LBMA has a stock of these materials for sale. The silver part of the project is also now nearing its conclusion. See the article on page 19.

Public Affairs

During the PAC's recent meetings, the main topics have been the timing and venues for the conferences in 2010 and 2011. The 2010 conference will take place in the Hotel Adlon, Berlin from 26th-28th September.

For 2011, the plan is to hold the conference in Canada and the Executive is currently looking at a number of alternative venues. The date has been tentatively established as 18th-20th September 2011, though this may change. Again, confirmation of the details will appear on the website in due course.

The Committee has welcomed a new member – Chris Thomson of Sumitomo Corporation but there is now another vacancy on the Committee following the resignation of John Reade. Anyone interested in applying should send a brief statement of their market experience to stewart.murray@lbma.org.uk.

Membership

The Membership Committee was pleased to note that following discussion between the Executive and HM Revenue & Customs, the LBMA has modified the requirements that need to be met by foreign banks applying to become Full Members. Whereas in the past, such banks were required to have a full branch in the UK, henceforth they will be able to apply for Membership if they have a subsidiary with an appropriate level of representation in the UK even if this is not a branch.

Finance

The Finance Committee met as usual in October to consider projections for the profit and loss in 2009 and 2010. It is clear that 2009 will show a very healthy surplus, partly because of the increase in subscriptions but mainly due to the success of the conference and the reference materials project.

The Finance Committee has also welcomed a new member, Alan Wallis of Comdaq Metals. This will mean that the Committee will have two qualified accountants amongst its members (the other being Terry Carroll of HSBC).

REACH

There are two separate strands to the LBMA's activity in respect of REACH (the EU legislation requiring manufacturers and importers of chemicals to register with the European Chemicals Agency).

The first concerns the question of the status of large gold bars which are held on behalf of investors in the London vaults. The LBMA has produced a position paper jointly with the European Precious Metals Consortium to argue that such bars should be excluded from the scope of REACH because they are articles rather than substances. Following legal review and any subsequent amendments, the final version of this paper will be submitted to the UK Competent Authority for REACH in January.

The second strand is the organisation of a seminar to allow LBMA Members to meet with

representatives of the Precious Metals Consortium in order to help them decide the best approach to obtaining the necessary registration dossier in respect of any precious metals which they import or produce. The first deadline will be in December 2010 when companies which manufacture or import 1,000 tonnes of silver per annum will have to register. The Consortium is currently carrying out the research to allow it to put together by that date the dossier which must accompany each registration. Companies which need to register will be able to obtain this either by joining the Consortium or by obtaining a Letter of Access and a license to use the dossier. The LBMA is organising a seminar at which Members will be able to meet representatives of the Consortium to explore which of these options is right for them. The seminar will take place in London in mid to late January. Watch the website for further details and an announcement of the date and venue.

Visits and Visitors

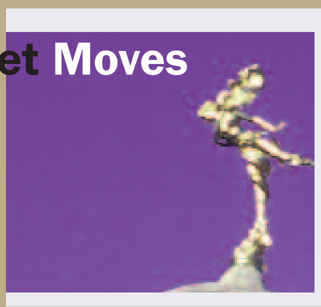
The Chief Executive took part in the 4th China Gold and Precious Metals Conference in Shanghai in early December. He chaired the first day of the Conference and presented a paper on “The Role of London in Precious Metals Investment”. He also visited the Chairman of the Shanghai Gold Exchange, Mr Shen Xiang Rong and the Executive Vice President of the Shanghai Futures Exchange, Mr Huo Ruirong.

The continuing interest in China in the way the London Bullion Market works was amply demonstrated on 12th November, when the LBMA hosted a visit from a delegation of 25 representatives of the People’s Bank of China. The Chairman and Chief Executive each gave presentations about different aspects of the London market.

Committee Vacancies

There is currently a vacancy on the Public Affairs Committee. Anyone interested in applying should send an email to the Chief Executive with a brief statement of their bullion market experience.

Market Moves



Richard Ringrose to **BNP Paribas, London**. Richard will be responsible for Precious Metals Sales. He previously worked for Wachovia/Wells Fargo, ANZ and CITI in Emerging Markets/FX Sales and Trading.

Gerhard Schubert from INTL Commodities to **Fortis Bank Nederland, UK Branch.** Gerry is heading up the new precious metals desk at Fortis Bank Nederland in Aldermanbury Square. Gerry`s involvement in precious metals goes back well over 30 years and the last few important career steps have been WestLB Cologne/London, Fortis Bank Belgium before joing INTL in May 2009. Gerry has served on the Management and the Membership Committee of the LBMA as well as on the Management Committee of the LPPM until leaving INTL at the end of September 2009.

John Reade to **Paulson & Co**. John was Head of Metals Strategy for UBS and will take up a similar role with Paulson & Co in mid-January.

Adam Cash from INTL Commodities to **Fortis Bank Nederland, UK Branch**. Adam is joining Fortis Bank Nederland as Precious Metals Trader. He gained experience in precious metals during his two year period at INTL after graduating from University of Southampton. He has very good knowledge of the physical business and that should provide a great building block for the derivative Trading as his new challenge.

Stephen Pender to **Calyon** from INTL Commodities Inc in November and will be responsible for precious metals spot and forward trading. Stephen previously worked at Fortis Bank S.A/N.V., where he covered market making in both precious and base metal derivatives, and before that at JP Morgan as a precious metals spot dealer.

facing facts

Paul Burton
Managing Director
GFMS World Gold Ltd

Signs that gold production costs are starting to rise again.

In Q3, average cash costs for the 64 gold producers that World Gold Analyst covers on a regular basis were $476/oz, level with a year ago after just a 2% year-on-year increase in Q2 2009. In Q1, costs were $432/oz, 7% up from a year earlier. So the good news is that cash costs are showing little increase from 2008.

However, quarter-on-quarter costs are once again being forced upwards after a two-quarter downturn at the end of 2008 and the beginning of 2009. Cash costs increased again in both Q2 and Q3.

Meanwhile, Barrick Gold continues to be the world’s largest gold producer with Q3

output of 1.9 Moz, some way ahead of Newmont Mining's 1.3 Moz.

However, the largest increase in production was posted by Freeport McMoRan, which saw its gold output almost triple to 708 koz. Freeport's production fluctuates widely on a quarterly and annual basis as the mining sequence at its Grasberg open pit and underground mining complex traverses through high and low-grade copper/gold zones. In Q3, not only did the average gold grade more than doubled to 1.33 g/t (with an associated improvement in recovery from 78% to 85%) but the mine also treated an extra 25% more ore by processing a massive 241 kt/d.

Another of the world's biggest gold mines, Yanacocha (owned by Newmont Mining and Buenaventura) in Peru, recorded a huge jump in tonnage dumped on the leach pad, from 19.7 Mt to 35.5 Mt, combined with an increase in grade (up from 2.98 g/t to 4.59 g/t) of the albeit relatively small amounts of ore to the mill, which saw gold production rise from 438 koz to 554 koz.

Canadian Agnico-Eagle Mines was another company posting an increase in output year-on-year. The company's production rose 73%, from 69 koz to 119 koz, owing to numerous new projects either coming on line or ramping up production.

Meanwhile, as we get to the end of 2009, gold shares have generally had a good year after the massive sell-off in the final quarter of 2008. One of the main global indices, the XAU, continued its general uptrend as the gold price rose throughout the year. Despite some volatility, the index traced an upward recovery line from 89 at the beginning of December 2008 to just over double that (193) on 1st December this year, before falling off with the $100/oz drop in the gold price from its new all-time high.

And what a ride it has been for gold investors in recent months with the gold price surging to new all-time highs almost, it seems, on a daily basis before the dramatic corrections in early December. I would be mischievous if I said that the pattern of a rapidly rising gold price in the final weeks of the year is worryingly reminiscent of the market exactly 30 years ago, when the gold price rocketed through the New Year to set what is still an all-time high in real terms in January 1980.

The gold price
surged in a fast bull run
Seventy dollars or more.
The stock market then joined in the fun.
Gold shares began to soar.

Fast forward 20 years to 1999 and the gold price staged a remarkable rally that proved to be a false dawn (two years early) for the weary gold bulls, but it did have some profound consequences for the gold mining industry. This was the rally that caught Ashanti Goldfields in a hedge trap that led to its demise. With the news in December 2009, that Barrick has closed out its forward sales, hedging (and dehedging) is now very much a thing of the past – except of course for one company, called AngloGold Ashanti!

1999 was also the year that the then Chancellor of the Exchequer, a certain Gordon Brown, announced that the Treasury would be selling a major portion of its gold reserves (the news damaged the market even though the sale of 395 t was carried out over a period of two years through a series of 17 auctions).

That same year, a consortium of 15 other banks formed the Central Bank Agreement on limiting official sector gold sales into the market. In 2009, the third such agreement came into force but hardly caused a stir as official sector sales have really ceased to be a major factor on the supply side of the market.

As it's the festive season, I thought I would leave you with some verses that I wrote when reviewing that fateful year of 1999 in the January 2000 issue of *World Gold Analyst*.

Ninety-nine was another tough year
For gold and miners alike.
With little good news to spark a cheer
But for one single spike.

The gold price plunged to twenty year lows,
With central bankers to blame.
Their conspiring, so the rumour goes,
Would help their bearish aim.

The biggest blow came from England's bank,
With plans to sell off some gold.
The net effect was, to be quite frank,
Worse through being told!

But then came some news that calmed all fears
And sentiment turned around.
Fifteen banks capping sales for five years.
The effect was quite profound.

The gold price surged in a fast bull run
Seventy dollars or more.
The stock market then joined in the fun.
Gold shares began to soar.

Investors smiled as the market moved,
Producers then lost their blues.
But for one or two the sharp rise proved
To be the worst of news.

The sudden rise broke the credit lines
Tied to their large gold hedges.
Margin calls against gold from their mines
Were part of their evil pledges.

Ashanti struggled to find the cash
While its shares halved in a trice.
Its future risked by being too rash
In gambling with the price.

Paul Burton *is Managing Director of GFMS World Gold, a company which undertakes equity research and publishes World Gold Analyst, a leading independent gold mining investment publication.*

Paul holds an MSc in Mining Engineering and an MBA from the University of the Witwatersrand, South Africa.
paul.burton@gfmsworldgold.com

The Alchemist is published quarterly by the LBMA.
For further information please contact Amy Berman, LBMA PR and Media Assistant
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

The Alchemist is designed by Ion River, produced by Amy Berman

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The Art of Precious Metal Transformation™

Knowledge

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

Innovation

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for **a variety of sophisticated precious metals products**, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

Vision

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY
REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: + 41 91 695 04 50 e-mail: info@pamp.com
fax: + 41 91 695 04 51 web: www.pamp.com

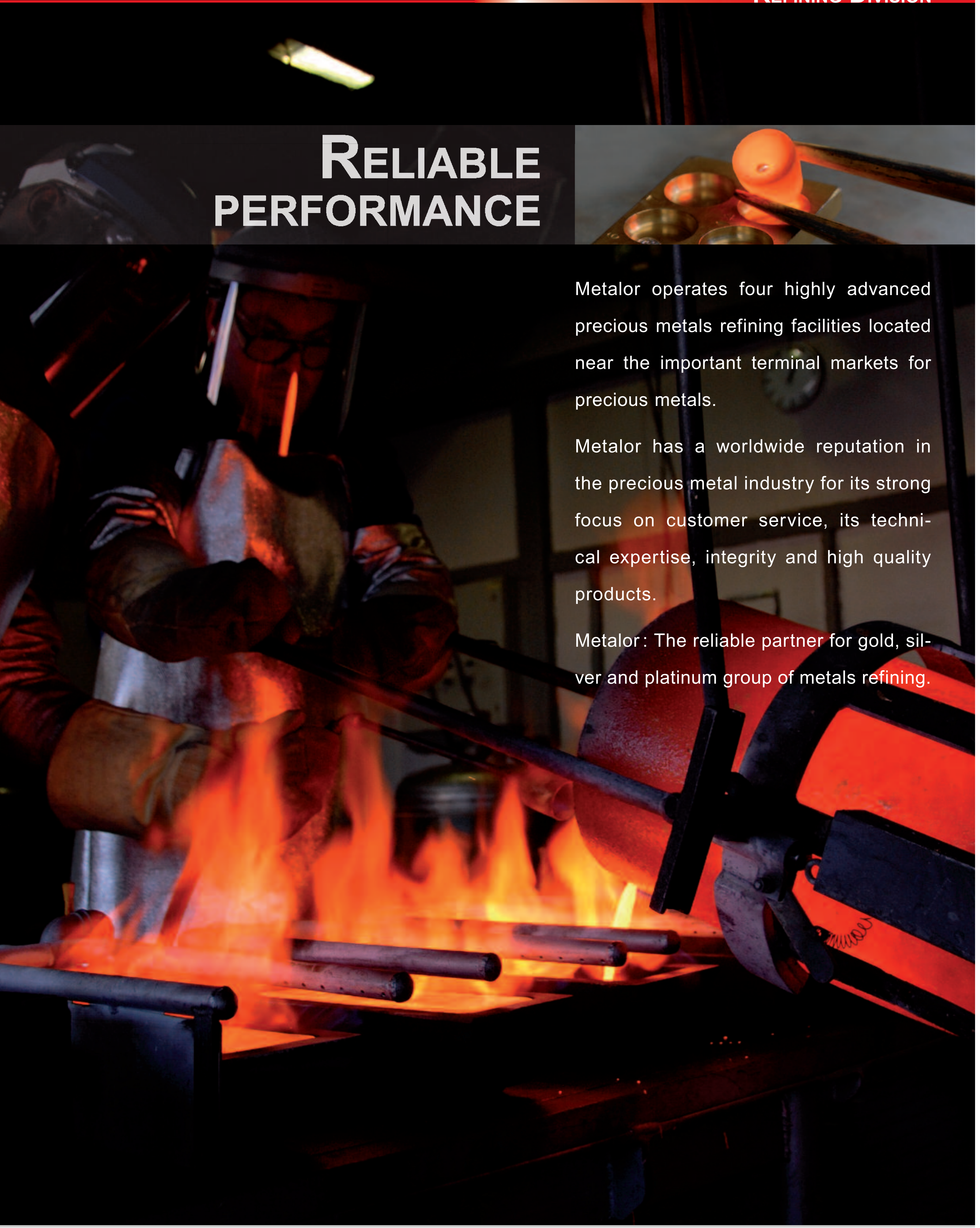
Alchemist

LBMA

The London Bullion Market Association ISSUE 58 April 2010

In this issue

A look inside Germany's Precious Metals Market - With the annual LBMA Precious Metals Conference heading to Berlin in September, the *Alchemist* focuses on Germany. See interviews with Frank Heinricht, Chairman of the Board of Management of Heraeus Holdings, on page 3 and Wilfried Held, Managing Director of the German Precious Metals Association, on page 6.



RELIABLE PERFORMANCE

Metalor operates four highly advanced precious metals refining facilities located near the important terminal markets for precious metals.

Metalor has a worldwide reputation in the precious metal industry for its strong focus on customer service, its technical expertise, integrity and high quality products.

Metalor: The reliable partner for gold, silver and platinum group of metals refining.

Metalor Technologies SA

Switzerland
Rue des Perveuils 8
CH-2074 Marin
Tel +41 32 720 61 11
Fax +41 32 720 66 02
info@metalor.com
www.metalor.com

United States
255 John L. Dietsch Boulevard
North Attleboro,
MA 02763,
USA
Tel +1 508 699 8800

Hong Kong
Suite 1705-9,
The Metropolis Tower
10 Metropolis Drive,
Hung Hom
Kowloon, Hong Kong
Tel +852 2521 4131

China
8 Zhao Yang Road,
Loufeng East Zone
Suzhou Industrial Park
Jiansu Province
China 215123
Tel +86 512 6593 6181

LBMA GOOD DELIVERY REFEREE

METALOR®

Dr. Frank Heinricht:

A Historical Look at Heraeus Holdings

By Dr. Frank Heinricht, Chairman of the Board of Management, Heraeus Holdings

Q: Can you give me an early history of your company?

A: The father of today's global company was Wilhelm Carl Heraeus, a pharmacist and chemist who took over his father's pharmacy in Hanau, Germany, in 1851. At the time, platinum was in high demand for jewellery making. But platinum posed a major challenge for goldsmiths: it had to be forged in a white-hot state, because it is extremely hard and has a melting point of 1,769 degrees Celsius. Wilhelm Carl Heraeus, who worked with local goldsmiths, was familiar with the problem – and he found a solution.

After extensive attempts, he succeeded in melting two kilograms of platinum in an oxyhydrogen gas flame. The first German platinum melting house was born, and success was not far off. The young entrepreneur's customers soon included goldsmith shops and jewellery factories around the world, as well as dental factories, chemical laboratories and companies in numerous other industrial sectors. Wilhelm Carl Heraeus continued to experiment with platinum and found one new application after another for the precious metal.

By the end of the 19th century, Dr. Wilhelm Heraeus and Heinrich Heraeus had inherited their father's business, and W.C. Heraeus relocated to new facilities just outside the city gates of Hanau together with 40 employees. At that time, around 1,000 kilograms of platinum were melted and processed each year.

In the post-war period, Heraeus benefited from the international contacts that had been forged by the company's founder before the turn of the century. Dr. Wilhelm Heinrich and Dr. Reinhard Heraeus built on that foundation. Beginning in 1958, the first foreign sales companies were established in France and Italy. Foreign subsidiaries and associated companies followed in the USA, Great Britain and Japan, along with production facilities in Korea and the Philippines. In 1979, foreign sales surpassed domestic sales for the first time.

In 1983, Dr. Jürgen Heraeus took the helm, the fourth generation to lead the family-owned company. Under his guidance, the enterprise became a fully-fledged global corporation. Dr. Jürgen Heraeus extended the Group's activities into Asia.

In January of 2000, he was chosen to serve as Chairman of the Supervisory Board of Heraeus Holding GmbH and Chairman of the Shareholders Committee.

Heraeus consists of six business groups, W. C. Heraeus (precious metals), Heraeus Electro-Nite (sensors), Heraeus Medical (biomaterials), Heraeus Dental (dental products), Heraeus Quarzglas (quartz glass) and Heraeus Noblelight (specialty lighting sources), under the umbrella of the strategic management holding company Heraeus Holding GmbH.

Today, our company has more than 12,800 employees worldwide and together they generate product revenue of nearly €3.0 billion and around €13.0 billion in precious metal trading revenue annually.

Q: Explain what you like about the precious metals industry in Germany, specifically.

A: Precious metals have a long and fascinating history in Germany. It is not for example really commonly known that our country for centuries used to be an important silver mining area. One can still visit historic silver mines, for example, in the picturesque town of Freiberg near Dresden. The Technical University there is probably the only mining university in the world that continues to run its own silver and base metal mine, and is able to train its students right on the job.

Once the mines in Germany were depleted, the focus shifted to gold and silver jewellery fabrication. And when new and cheaper competition in other parts of the world appeared in the last 25 years, the German precious metals industry had once again to adapt to a new environment. One resultof those developments is that when talking about the German precious metals industry today, we are now talking about a wide variety of industrial uses, many of those in high-tech and environmental applications.

Since Germany is a country with very little natural precious metal resources, refining plays an important role in securing a stable supply. From the very beginning, German companies have been pioneers in reclaiming these metals from all kinds of scrap to make the country less dependent on imports of fresh metal.

Q: With your company under private ownership, how does that affect you and your previous experience?

A: I experience private ownership as a significant advantage when it comes to executing long-term strategies even in a severe crisis. This does not mean that we do not apply standard industry practices in order to restructure part of the company, if necessary. But several examples come to mind, in which staying the course was the right way to overcome some disruptions in the market. The financials of the past years confirm that we are on the right track with this approach and the feedback of our shareholders is positive as well.

Q: Can you tell me the differences in how your company deals with Au and Ag compared to PGMs?

A: Traditionally, Heraeus has a background in platinum group metals. In this area, we concentrate on industrial uses and on refining.

In gold, our activities are split between industrial activities, such as bonding wire used in the electronics industry and serving the investment community by producing tens of tons of investment gold bars each year.

Silver didn't play an important role for us in the past, but as technology-driven applications gain more importance, our expertise can play an important role. Heraeus has become an important supplier of silver pastes for applications in the photovoltaic industry as well as for materials for the glass coating sector.

The Unicorn Pharmacy in Hanau

Q: A lot of companies tend to diversify. Why has your company always stuck to its original roots?

A: The fact that our company is still in the precious metals business 155 years after Wilhelm Carl Heraeus started being active in the precious metals area does not mean that we have not gone through a large number of transformational processes over the years. Actually, in that century and a half, we have been reinventing ourselves constantly: we have added many new businesses on the precious metals side and also related to other types of materials. I would say that, on average, we take over about three to five companies or divisions from other firms per year and integrate them into our own business, each time adding technical know-how and cultural diversity. At the same time, we have also divested from a number of activities over the years after coming to the conclusion that these no longer fit in our product portfolio.

Another trend that certainly wasn't foreseen by our founder back in the 1850s was today's internationalisation of the company.

In 2010, a minority of our workforce – just 37% – is actually based in Germany. Heraeus has had a presence in the US for nearly 100 years, and we have been active in Hong Kong and in mainland China for many decades as well.

Q: What attracted you to the bullion industry?

A: My professional background is linked to the semiconductor and electronics industry. Heraeus serves many customers from that industry, so I felt very comfortable in this environment from the beginning. I also felt personally attracted by the broad technology portfolio and the power to innovate. That's certainly not limited to precious metals, but also extends to synthetic quartz glass for the telecommunications industry and advanced materials for medical and dental applications. The roots of Heraeus go back to precious metals, but our product tree has grown in many directions, resulting in a diversified, financially stable and solid company.

Q: How has the industry changed in Europe over the past ten years?

A: Certainly the importance of the jewellery industry in Europe has declined in the last decade. Another area that has shrunk precipitously is the usage of silver in the photo industry. On the other hand, new applications have emerged in the last ten years, especially for silver, and this trend will continue.

We also experienced a massive migration of the semiconductor and electronics industry to Asia, so we had to follow our customers, eg by shifting gold bonding wire activities to Korea and China.

Q: What issues are currently affecting the precious metals market in Germany?

A: Facing the severe decline in the jewellery industry in the last 20 years, German refiners and fabricators were forced to look for alternative products in which they could make use of their core competencies. In many cases, this has worked out successfully and often it has been accompanied by an expansion of activities outside Germany, both by attracting more foreign business for the German sites and also by increasing the number of plants in other countries.

Apart from the industrial side of the business, Germany has in the last two years been the largest market for physical investment gold, with more than 130 tons of gold bars and coins sold to private investors in 2009 alone. In addition, several hundred tons of silver were sold as well, despite the fact that investors have to pay up to 19% VAT when buying the white metals in physical form. At one point after the start of the financial crisis in 2008, demand was literally overwhelming. Our people in the refinery had to work three shifts and seven days a week to cope with demand. Germans are extremely attracted to physical gold as an investment and any news about possible disruptions in the financial system, inflationary tendencies or states being on the brink of bankruptcy immediately causes higher sales of physical precious metals.

Q: What sort of trends can we look out for in the coming year in Germany?

A: I foresee two big areas where Germany could serve as an example. First, the trend to invest a portion of personal wealth in physical precious metal. If people in other countries decide to follow the German example, it would mean really exciting times for the producers of investment bars and coins.

Secondly, German companies could be at the forefront of developing new industrial applications, especially for silver and the platinum group metals, with the latter including the minor PGMs rhodium, ruthenium and iridium.

Q: How do environmental issues affect the metals industry as a whole?

A: I think we have to look at two very different aspects here:

One is the way precious metals and products containing them are treated when it comes to regulatory issues such as REACH, the framework for regulation of chemicals in the European Union. It is the strictest law to date regulating chemical substances, and has and will continue to impact industries throughout the world. In my view, the precious metals industry in Europe has found a way to cope with the regulatory requirements set by REACH.

The second aspect is the ever-growing usage of precious metals, especially of silver and the platinum group metals in an incredibly large number of environmental technologies. Be it silver in the photovoltaic sector and in wood preservatives, iridium in OLED technology (replacing conventional lighting) or all types of catalytic applications for the platinum group metals, there seems to be no end to this trend.

Q: With the LBMA conference coming to Berlin in September, what do you predict will be big topics of discussion?

A: The question of the growing public debt and its effect on the financial state of whole countries could well make it into the headlines. If the situation worsens and other countries follow Greece to the edge of the abyss, we could well see another round of physical gold investments, leading to another all-time high in the price.

If, in contrast, governments and central banks succeed in stabilising the world economy, I could imagine that the industrial consumption of precious metals will get another massive kick.

Under such circumstances, it is not totally unimaginable that by September, we will see a silver price that exceeds the 2008 high, and prices of platinum and palladium creep back to their 2008 highs – supported by long-term investment demand through ETFs and thus, this time, much more fundamentally backed than two years ago.

The conference by the industry for the industry

The LBMA Precious Metals Conference 2010

26 - 28 September 2010
The Hotel Adlon
Berlin

The London Bullion Market Association
13-14 Basinghall Street
London
EC2V 5BQ
www.lbma.org.uk
conference@lbma.org.uk
T: +44 (0) 20 7796 3067




There's a place for all market players at the LBMA Conference - registration opens in June

Wilfried Held:

The background of the Fachvereinigung Edelmettale, the German Precious Metals Association

By Wilfried Held, Managing Director, Fachvereinigung Edelmettale

With the LBMA Precious Metals Conference taking place in Berlin this year, the Alchemist spoke with Wilfriend Held to get a closer look at the Fachvereinigung Edelmettale, the German Precious Metals Association to learn more about the background of the organisation.

Q: Can you discuss a bit of background on yourself and how you got into the precious metals industry?

A: I studied economics. Right from the beginning of my professional career, I have worked in federations. To begin with, I worked for three years at the German newspaper editors association and, then in 1984, I started to explore the world of the non-ferrous metals as advisor for economic policy in the German non-ferrous metals federation in Düsseldorf. At the time, the Managing Director of this association advised me: "If you really want to join the non-ferrous metals and precious metals industry, there will be two options: you will leave this industry within three days, or you will stay there for the rest of your life!" I have now worked in this industry for more than 25 years, and it's still a fascinating job. In 1994, I became Managing Director of the German precious metals association (Fachvereinigung Edelmetalle) – a former member of the non-ferrous metals association (Wirtschaftsvereinigung Metalle).

Q: How, why, and when was Fachvereinigung Edelmetalle set up?

A: After World War II, Europe, and especially Germany, had to recover and to establish political and economical stability by introducing market economy principles. In a market economy, know-how and experience of the industry are indispensable. At that time, the different industry branches started to organise themselves. Most well-known associations were founded at this time – the second half of the 1940s. Fachvereinigung Edelmetalle was founded in 1948. Since then, this association has represented the interests of the producers and manufacturers of precious metals vis-à-vis the Federal Government, the Parliament, and national or international organisations. Its objectives are to study all problems faced by the industry, for example, in the fields of environmental, trade and raw materials policy.

Q: Can you explain the history of your members?

A: Fachvereinigung Edelmetalle is an organisation of great stability and reliability – characteristics that no federation can do without. Since its foundation 62 years ago, only five managing directors have run the office. The Fachvereinigung has 20 member companies employing 6,000 people. Members are the producers and manufacturers of precious metals. The centres of production are Hanau and Pforzheim, where precious metals have been produced for more than 150 years, with considerable economic importance. Precious metals are key products for modern life. No lap-top or mobile phone would function without the precious metals used in the components. All human efforts to protect our environment would fail without precious metals. Just think of auto-catalysts or of all the technical equipment helping to make our world cleaner. Precious metals even help to make the world more enjoyable: think of jewellery! And they make it healthier as well, if you think of the precious metals used to make dental alloys and some cancer treatments!

Q: Who is on your board?

A: The Chairman of the Fachvereinigung Edelmetalle is Dr. Roland Gerner, Managing Director of W. C. Heraeus GmbH, Hanau. The Vice-Chairman is Dr. Jörg Beuers, CEO of Allgemeine Gold- und Silberscheideanstalt AG, Pforzheim. The Treasurer, Ralf Drieselmann, is Senior Vice-President of Precious Metals Management, Umicore AG & Co. KG, Hanau. Three other gentlemen complete the Board: Dr. Philipp Reisert, Managing Director of C. Hafner GmbH & C. KG, Pforzheim; Marc Turpin, Managing Director of AMI Doduco GmbH, Pforzheim; Oliver Völlinger, Managing Director of Wieland Dental & Technik GmbH & Co. KG, Pforzheim.

Q: Can you tell me about the main roles of Fachvereinigung Edelmetalle, including: statistics, lobbying, and liaising with regulators?

A: Fachvereinigung Edelmetalle represents the economic interests of its member companies vis-à-vis the authorities and the public. Its expertise is highly appreciated by all stakeholders.

Since 2006, Fachvereinigung has been a member of the German Jewellery and Watches Association in Pforzheim and, therefore, represented by the German Industry Association BDI in Berlin. The European Union is still of growing importance regarding industry regulations and politics. The vast majority of all regulations affecting this industry originate in Brussels. Thus, Fachvereinigung is also a founding member of the European Precious Metals Federation (EPMF) in Brussels. This federation represents the industry vis-à-vis the European Commission and other international stakeholders. Germany is represented by two members of the EPMF Board: Ralf Drieselmann as Treasurer and myself as Vice-Chairman.

Q: Can you discuss your company's views on REACH?

A: The industry's view is that REACH might be a useful instrument to increase transparency and to further protect the environment and the consumer. The European

precious metals industry is meeting all the REACH requirements with utmost care.
We have built a Consortium with 48 members covering all precious metals.

This Consortium is well structured and does an excellent job to fulfil the REACH obligations. But everybody has to recognise that REACH means an additional burden for the industry: a high cost and a very heavy workload for the industry experts. These costs impact the industry's global competitiveness, because they cannot be passed on in product prices. We agree with Business Europe, the Confederation of European Businesses, on the need to limit the burdens imposed by REACH:

-The financial burden should be reduced.

-Companies are still left with legal uncertainties because of inconsistency or lack of co-ordination between different pieces of legislation.

-The number of environmental and technical regulations should be reduced to avoid the increasing over-regulation in Europe.

Q: How do environmental issues affect Fachvereinigung Edelmetalle?

A: When it comes to meeting all the environmental requirements, the costs involved are not the only aspect to consider. Environmental protection also creates a market for precious metals, as these are key products that will support all efforts to better protect our world against environmental damage. But of course, environmental policy should strongly be based on scientific knowledge. Actually, the precious metals industry is facing discussions to set a new Occupational Exposure Limit for chloroplatinates, which would be 400 times lower than the well-established limit applied today. This measure is based on a study that is ten years old and not valid to justify new measures. Another important topic in Europe is waste legislation, which will incur bureaucratic cost for the industry.

Q: With the LBMA conference coming to Berlin in September, what would you predict will be the big topics of discussion?

A: The high uncertainty about the future of the euro, caused through discussions about potential sovereign defaults and the related role of gold will certainly be one of the major topics. Another major item that presumably will be discussed is the continuously growing investor appetite for precious metals across the board, which competes with a recovering industrial demand. The question is whether the investment demand will be sustainable. Another topic might be REACH, which is of special interest to companies in Europe, but also worldwide.
A discussion about how to secure access to precious metals in the framework of the EU Raw Materials Initiative and about the contribution of recycling would also be very interesting.
The precious metals industry tries to meet all requirements in the field of sustainability.
A presentation of sustainability initiatives and company reports would be welcomed as well.

The offices of Fachvereinigung Edelmetalle

Q: What, if any, do you think will be the future problems in the precious metals industry in Germany that your company will need to explore?

A: In principle, to keep the political and economical framework acceptable. Basic points are to avoid over-regulation and to limit the costs imposed on the industry.
The precious metals industry puts key products on the market, which everybody needs, and this industry creates jobs for a lot of people. Jobs are the best way to solve all social problems in every country. So let's see this industry as a real friend of society.
Other topics will be to ensure that secondary raw materials will be recycled efficiently here in Europe, instead of being exported in growing quantities to countries with very low or no environmental protection.
Environmental protection doesn't stop at borders. So-called backyard recycling in Asian and African countries means high losses in precious metals as well as dramatic environmental and health impacts. Illegal shipments of secondary materials damage Europe's 'urban mines'.

A third point would be to keep markets open and to avoid growing protectionism, which can always be observed in difficult economic times. To complete the Doha Round: the further reduction of tariffs and dismantling
of non-tariff obstacles must finally be achieved as soon as possible – after almost ten years of negotiations.

Q: What, if any, are the current challenges facing the industry, including strengths, weaknesses, opportunities and threats?

A: We are convinced that the usages of precious metals will keep increasing.
More and more people in the world are asking to take part in economic social and technical welfare. Without precious metals, no progress will be realised. Precious metals will, in an increasing way, contribute to human dreams of a modern life offering technical innovation and a clean environment.

Finally, they make crucial contributions to solve our future energy and climate challenges. Examples are PMs containing fuel cells for zero emission transport, PM process catalysts for energy-efficient production of (petro)chemicals, smart PM control electronics for system optimisation, or PMs needed for certain photovoltaic or solar-thermal applications. ■

The Chinese Platinum Jewellery Market

By David Jollie, Publications Manager, Johnson Matthey

Annual demand for platinum from the Chinese jewellery sector has increased by more than ten-fold in the two decades from 1990 to 2009 as this market has developed. Despite this relative maturity, last year saw record demand of 1.75 million ounces of metal (net of recycling) (ref 1), – more than double the figure for the previous year. In part, this exceptional performance was due to the fall in the platinum price during the second half of 2008, but the market dynamics that led to this outcome were rather more complex than this simple statement might suggest.

A short guide to jewellery demand

Net demand for platinum in the jewellery industry can be thought of as composed of three separate components: on the positive side, there are manufacturing volumes for jewellery and any increases in stocks of unprocessed or semi-processed metal anywhere within the jewellery industry. Together, these equate to gross jewellery demand for platinum. On the negative side, of the equation is the return of metal from unsold retail stocks or from previously owned jewellery. The picture is complicated by the possibility of imports and exports (although these are relatively insignificant in comparison to domestic Chinese production for domestic sale) and by the recycling of metal within a jewellery manufacturer (accounted for by treating a manufacturer as a so-called black box and measuring only metal entering and leaving that 'box' as affecting demand).

In order to understand the trends in net demand in the jewellery market, therefore, it is 'only' necessary to understand any and all factors that can affect manufacturing demand, anything that can alter sentiment and behaviour in terms of metal stocking or destocking within the jewellery industry, and the driving forces behind recycling within the Chinese market.

Manufacturing volumes

Changes in manufacturing volumes can be viewed from three different perspectives: consumer pull, manufacturer push and supply chain issues, all of which have a bearing on metal demand.

Consumer pull

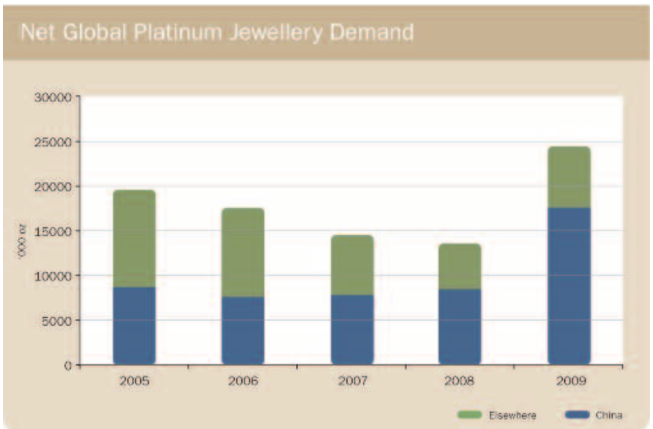
Consumer pull is the most important of these three factors in a normal year. A simplistic view of this market based on this perspective would suggest that a low platinum metal price directly generates additional demand by improving the affordability of platinum jewellery.

Although there is some truth in this model, unfortunately, such conventional wisdom appears to have only a limited relevance in this case.

Plain platinum jewellery (ie without any precious or semi-precious stones) is typically priced in Chinese Yuan per gram across most of China, and keen competition between retailers often means that a de facto retail price exists in an individual city. While this does respond to movements in the international price of platinum, it can show a considerable time-lag. Many retailers were slow to reduce prices in the early part of 2009 as they averaged down metal prices on existing stock. Thus, although the metal price had fallen, consumer prices were relatively slow to follow. In some cities, retail prices were therefore still falling even as the platinum price rose in the second half of 2009.

Thus the 'Economics 101' argument mentioned above does have some validity when looking at retail prices rather than metal prices: the falling *retail* price certainly allowed platinum jewellery to compete more effectively against other products that could capture a share of the consumer's disposable income, boosting demand.

More importantly, though, the retail price of gold moves in very close correlation to the international price of that metal. The gap between the retail prices of these two metals (platinum and gold) therefore narrowed significantly in many cities in China throughout the year. Although gold has a strong emotional and historical connection for many Chinese people, it is sometimes considered more old-fashioned (something that is particularly true for 24 carat yellow gold). Qualitative research by Platinum Guild International (PGI) suggests that platinum has a cachet and an appeal to younger consumers and can be an aspirational purchase. Thus, although the gold market remains much larger



Global demand for jewellery fell from 2005 to 2008 under pressure from rising metal prices. However, 2009 showed a remarkable resurgence in net demand in China and Japan.

Platinum jewellery can return back into the manufacturing chain when part exchanged for new jewellery or when sold back in booths such as this.

than the platinum jewellery market in China, consumer demand for the white metal benefited from this narrow price differential, with platinum becoming relatively more attractive to some consumers as the prices of these two metals approached one another. One clear example could be found by examining the metal of choice for gem-set (diamond-containing) jewellery. Visits to a number of Chinese cities in early 2008 revealed that white gold alloys were gaining an increasing share of the space available in shop counter displays in order to maintain the affordability of these gem-set products as the platinum price rose. However, the fall in the prices of platinum and of diamonds later in the year improved consumer affordability, ensuring that retailers had returned to platinum as the metal of choice by early 2009 – both in response to latent consumer interest and in order to maintain profit margins at the retailer. However, there were other factors driving the Chinese consumer's behaviour. The buoyancy of the Chinese domestic economy during 2009 maintained disposable incomes at high levels in most cities. The ready flow of credit to commercial organisations has been an endless source of interest to Western commentators, but other factors seem to have been more important in fuelling this spending spree on platinum. The strong performance of the Shanghai Stock Exchange may have reinforced the feel-good factor amongst much of the populace, encouraging spending on non-essential items. What feels like a nascent housing price bubble in cities such as Shanghai also seems to have boosted people's perception of their own personal wealth and thereby contributed additional consumer demand for platinum jewellery amongst other goods.

More surprisingly, the rising platinum price itself was arguably beneficial in driving sales. All precious metal jewellery sold in China brings with it a degree of status and also acts as a 'store -of -value'. The steady increase in the underlying metal price during 2009 was noticed by some consumers despite the more lethargic movements in the retail price and doubtless contributed a degree of additional consumer demand. As a side note, in the longer term, it will be interesting to see whether the precipitous fall in the platinum price of late 2008 has any effect on the perception of platinum as a "store-of-value", but this seems not to have been a dominant factor during 2009.

Finally, calendar effects should not be ignored. While it is not trivial to attempt to explain the impact of the Chinese calendar on the number of weddings held in a year in a short article, the huge number of weddings taking place on 9 September 2009 (ref 2, 3) does indicate its relevance. Added to this, the 60th anniversary of the founding of the People's Republic of China and the fact that Valentine's Day fell on a Saturday also both appear to have boosted sales of platinum and of other precious metal jewellery. All of this extra consumer demand drove greatly increased volumes at the manufacturing level.

Manufacturing volumes: manufacturer push and supply chain issues

Several years of rising metal prices had driven a slow reduction in stocks of finished jewellery at the retail and wholesale level, and late 2008 and early 2009 provided a good opportunity to rebuild these to previous levels. With consumer interest high, retailers went further and actually expanded their stock levels, confident that they could still turn them over on an acceptable timescale. With sales strong and the economy growing, independent jewellers built new stores in cities where they already operated and also expanded into smaller, less wealthy locations too, generating more sales and taking more stock in the process.

In department stores, where much Chinese jewellery is sold to consumers, the store charges a percentage of turnover as commission from the individual concession-holders. A high gold price and good levels of sales of most jewellery encouraged these larger stores to devote more floor space to jewellery too. It is questionable how much effect this action had on sales of platinum, but it did contribute to the increased levels of stock being held throughout the industry.

High consumer demand also proved beneficial at the manufacturer level. After the relatively weak first three quarters of 2008, the rapid onrush of new demand from retailers drove increased levels of staffing and higher throughput. Many manufacturers became constrained by capacity, ie they could have sold more jewellery than they were able to produce. With manufacturers' profit margins typically related to the number of grams that a piece weighs, manufacturing of platinum jewellery became yet more attractive than manufacturing gold or palladium jewellery (due to the higher density of platinum compared to these other two metals, a greater weight of jewellery can be produced in platinum than in gold or palladium by the same number of employees, leading to higher profitability), adding a final touch of strength to manufacturing demand for platinum, perhaps at the expense of gold and palladium.

Changes in stock levels

Having noted that changes in the weight of finished pieces at wholesalers and retailers throughout China are already accounted for in manufacturing demand, the question remains as to what factors can impact upon other stock levels.

Just as at the retail level, manufacturers responded to several years of rising platinum prices by minimising the amount of metal they owned in raw or finished form or as metal in process in their factories. By the time metal prices reached their peak in mid-2008, these stocks had probably come close to a practical minimum level and, as the price fell, manufacturers bought heavily to rebuild stock levels, adding several hundred thousand ounces to platinum demand in the final quarter of that year and the first half of 2009.

It might be thought that the picture since that date has changed to one of destocking as manufacturers battled to keep stock levels

Purchasing of platinum on the Shanghai Gold Exchange – where much of the metal used in the Chinese jewellery industry is sourced – increased in the second half of 2008 and remained strong throughout 2009 in response to lower metal prices.

steady in local currency terms against the tide of a rising price. There is indeed some evidence that this is the case at a few manufacturers, but it seems likely that it was outweighed overall by the relatively common Chinese response of buying into (or gambling on) a rising price as noted in a recent article in this journal (ref 4).

Unsurprisingly, the improved profitability of the jewellery manufacturers mentioned above also led to new companies entering this space, adding to inventory late in the year. Some of the larger retailers and wholesalers also built stocks of raw metal both at low prices and as the price rose, in effect hedging their later metal requirements.

Recycling

According to Johnson Matthey's figures (ref 1), the amount of metal recycled from old jewellery stock and from second-hand jewellery climbed from 210,000 oz in 2008 to 300,000 oz in 2009. Within this number, it is likely that the amount of metal returned by retailers for remanufacturing actually decreased. This recycling stream is typically composed of rings and other jewellery that has remained unsold due to unattractive design, low manufacturing quality or simply remaining in a showcase long enough to move out of fashion. A number of personal visits to the Chinese market suggest that both design and quality have improved during recent years, leading to lower recycling requirements from retailers. However, more importantly, with retail sales having been particularly strong during 2009 compared to 2008, less stock would have remained unsold for long enough to date the design. With many retailers looking to increase their total stock levels, it may also have been less important to retailers to rationalise existing stock: their efforts would have rather been spent on replacing pieces that had been sold.

Looking at the recycling of second-hand jewellery, there are two routes for the metal to return. Many, if not most, retailers will provide credit against platinum pieces handed in as part exchange for new jewellery. The metal thus returned – often from broken pieces or from old-fashioned designs – will usually find its way back into the jewellery manufacturing chain at some point. Hard data is difficult to find on how much metal might be returned through this route, but anecdotal evidence suggests that a rough estimate of 10% of the weight of metal sold in the form of new jewellery could be returned in part exchange. The substantial uplift in retail purchasing of 2009 should therefore have lifted the amount of metal recycled in this way.

The final route for metal to return to the manufacturer is through kiosks purchasing old jewellery. As metal prices have increased over recent years, these have become more widely seen – just as in Japan – and provide a route to sell old or broken jewellery for cash rather than in part exchange. Volumes of metal returning to manufacturers through this route peaked in the first half of 2008 but declined rapidly as the price fell. They have since recovered steadily as the international platinum price has risen, improving the economics of this business and providing an improved return to the consumer selling an old ring.

2010: another auspicious year for platinum jewellery demand in China?

Although the outlook for underlying platinum demand from the Chinese jewellery sector remains positive, it would be greedy to expect another year showing such extraordinary growth. The factors leading to the widespread stock-building seen in 2009 (and late 2008) appear unlikely to be repeated, leading to a closer correlation between gross demand and consumer purchasing. At the time of writing (early February 2010), the raw platinum price is at a substantially higher level than for most of 2009 and purchasing by the Chinese jewellery industry appears to have slowed somewhat as a result, albeit with substantial purchasing occurring whenever the price has fallen. However, the more important issue this year is likely to be the attitude of the consumer. With the Chinese New Year and Valentine's Day occurring on the same date this year, sales at this time will be important in demonstrating whether underlying consumer demand can grow further from last year's levels in the short term. ■

References

1 David Jollie, Platinum 2009 Interim Review, Johnson Matthey, November 2009

2 Philip Klapwijk, "Will China Overtake India to Become the World's Largest Manufacturer of Gold?", The Alchemist, LBMA, January 2009

3 Luo Hualin, "Rush to Register Marriages on Lucky 'Triple Nine Day', Women of China, http://www.womenofchina.cn/Issues/Marriage_Family/212512.jsp

4 "China rush on 'lucky' wedding day", BBC, http://news.bbc.co.uk/1/hi/8245765.stmi

David Jollie *is Publications Manager at Johnson Matthey's Precious Metals Marketing business, based in Royston in the UK. In this role, he has been responsible for writing and producing Johnson Matthey's twice-yearly review of the platinum group metals markets since 2006.*

David has worked at Johnson Matthey since 1997 in a range of positions. His first role was in developing emission control catalysts for both the light and heavy-duty diesel vehicle markets. Since that date, he has focused on market analysis and market development primarily on the demand side of the platinum group metals.

David has a degree in chemistry from the University of Oxford and a doctorate in inorganic chemistry from the University of Nottingham.

Letters to the Editor

Dear Editor,

Re: Article "*Will China Overtake India to Become the World's Largest Manufacturer of Gold?*"
(the Alchemist, 57; January 2010)
Some Reflections of an Impressed Reader.

Philip Klapwijk's article was excellent. It provided valuable insights into many less known underlying factors. For example: [i] The price sensitivity in India. [ii] Less developed retail market in China. [iii] Impact of social change on gold demand in China. [iv] Shifts in demand for different types of gold products, etc. The article is a must-read to help fathom the complex environment for gold policy.

The title however did confuse me initially, despite your quoted definition of 'manufacturer' of gold. First, the article is all about demand for or consumption of gold in these countries. Secondly, unlike other 'manufactures', gold, being permanent, is regularly recycled. Much of the fabrication of jewellery, of industrial products or of investment bars is from such recycled gold. Thirdly, India also has been importing and using up a large part of the world's newly mined gold year after year; adding it to the country's [bottomless] stock. India is an insignificant manufacturer in the world of gold. Hence, in the title, the words 'buyer' or 'user' would have been better substitutes for 'manufacturer'.

That apart, the analysis in the article brings to surface the need for further research on many facets. For example: [i] the impact of 'black money' or 'unaccounted money' being generated in the concerned economies on the shifts in gold demand away from jewellery in favour of bullion bars and on the gold appetite in general; and [ii] the methodology adopted of the Chinese statistics pertaining to the newly mined gold in that country.

The thrust of the article is analytical. Yet, phrases like 'overtake', 'incumbent vs. challenger', or 'gold medal spot' indicate the direction of the author's mind. In contrast, I can well imagine some economists and policymakers in my country ready to celebrate. 'So what?' they would say, 'Good riddance if Indians at long last, are getting out of their non-productive gold appetite.' I for one, stand by the conclusion in my paper at the LBMA conference in Dubai exactly a decade ago: "In the next fifty years or so, there will be no erosion in India's gold appetite." However, in this matter, India is not in any race at all, for someone else to overtake us or lag behind us. If one day, China is seen 'consuming' more gold than we do in India, I will neither mourn nor celebrate.

I look forward to reading many more such articles in the *Alchemist* in future.

Kind regards,
D. R. Pendse, M.A. [Cantab]
Consulting Economic Advisor
Dattatraya R. Pendse
Centre for Economic Policy Advice

Dear Editor

Re: Article "*Will China Overtake India to Become the World's Largest Manufacturer of Gold?*"
(the Alchemist, 57; January 2010)

In his recent article (issue 57, page six) Philip Klapwijk asks the question 'Will China overtake India to become the world's largest manufacturer of gold?' Irrespective of the size of the Indian market, China's gold market has seen strong and stable growth in demand since deregulation in 2002, making it a truly important gold market.

In 2009, consumer demand for gold in China increased by 9% compared to 2008, bolstered by a 6% rise in jewellery demand and an increase of 22% in net retail investment. China has particularly high levels of savings and investors have recognised the value of gold in these savings to preserve wealth against possible future inflation. This is reflected by the extent of channels for physical gold investment products available to the individual via both commercial banks and bullion houses. China is also a strong supplier of gold. It is now the number one producer of gold.

One point of contention would be the author's assertion that 'Chinese demand…has climbed higher, not just in spite of local price strength, arguably, also to some extent because of it'. Although an increasing price may encourage consumers to buy before gold becomes too expensive, price is not the determining factor for physical gold purchases in both jewellery and investment in China – gold purchasing is driven by consumer need. Occasions such as weddings, cultural celebrations and the aftershocks of the financial crisis, which has highlighted the need for gold's wealth creation and preservation qualities, continue to have a significant influence on retail purchasing.

Going forward, it is not important whether China or India lead the race to be the number one consumption country in the world, since both consumers and investors in China and India will continue to add gold jewellery to their wardrobe and gold bars to their portfolio.

Kind Regards
Albert Cheng
Managing Director, Far East
World Gold Council

Please send your Letters to the Editor to: Alchemist@lbma.org.uk

LBMA Fire and Ice

2010 Annual Party

The Association's Annual Party was held at Below Zero Ice Bar on 25 February.
Members and Associates donned capes, gloves, and hoods to brave the arctic temperatures of the Absolut Ice Bar.
Fortunately, the wintry weather did not deter guests. Cocktails were served in blocks of ice and vodka shots were flowing out of the LBMA ice luge.
Thanks to everyone who attended - plans for next year are already underway.

A Day in the Life of an Assayer

By Jonathan Forrest, Manager of Assay Services, Royal Canadian Mint

07:30

Arriving at the Mint, I change clothing and proceed through High Security into the refinery, production and manufacturing plant. I pass through the refinery before heading up to the lab to check in with the Director for the Refinery to review the day's production schedule for Fine Au /Ag casting and pre-melt. Making my way up to the Assay Laboratory from there – the lab is located on the second floor of the refinery – the first order of business is to review and sort the email, responding to the most pertinent communications. I then touch base with the technical staff in the lab and advise them of the production schedule and priorities for the day. They, in turn, advise me of any problems with equipment, instrumentation, unusual samples and/or unusual requests for analysis.

08:15

I attend the daily morning stand-up meeting in the Refinery Directors' office with Refinery Lead-Hands and Mint Office personnel to evaluate the day's pre-melt and fine casting production plan. Also, we review any additional requirements from the refinery such as requests for assays on by-products, exchange samples and upcoming events, such as inventory or other meetings that I might be required to attend.

09:00

At this point, I'm now rummaging through reports that are arriving on my desk from overnight runs of material that were analysed on the Inductively Coupled Plasma-Atomic Emission Spectrometer (ICP-AES) and or the X-ray Fluorescence Spectrometer (XRF). They are scrutinised for quality to ensure they meet the necessary specifications before a report on their acceptability is issued. The lab serves many departments across the Mint, including the gold electroplating process for numismatic coin production, the Engineering R&D Lab, the High Speed Silver Electrolysis (HSSE) Refinery, Gold Electrolysis, the Hydro-Metallurgical plant, and all analysis of by-product material leaving the building and exchanged with outside refiners.

10:30

Meeting the Health and Safety Coordinator on reformatting assayer technician workstations to improve ergonomics. It goes well and solutions are adopted, work orders are issued to complete the changes.
Now, it's back to reporting mode at my desk.

11:00

We lose the XRF functionality this morning due to the failure of an electronic component. A technical service representative is on his way in to address our instrument problem. This will slow things down for the day – none of the technicians are happy about it.

Mint medals displayed at the RCM Pavilion in Vancouver

12:00

It's lunchtime for most in the lab – we have a rotational lunch so that there are always people on the floor. I continue reviewing reports and assigning priorities for requests that are pouring in. I have a scheduled Health and Safety Meeting for my laboratory staff in two days and materials need to be prepared for our one-hour meeting. With ergonomic improvements for employee workspaces underway, that will be the topic for January. A little research followed by a download of some information from the internet for handouts. There is a video/CD for the presentation along with a short quiz that will also be completed in an open forum.

14:00

Most of the day's work is coming to a close for the staff, fire assaying of incoming rough gold deposits for the day is nearly completed and reports arrive on the printer from the FAS (Fire Assay System program). They are then reviewed, approved and released to the refinery. Once final settlement is made with the customer, the deposits make their way to first Chlorination and then Electrolysis.

15:00

My Senior Assayer and I are finalising any reports due for the day. Ensuring that all fine gold and fine silver produced can move swiftly through our manufacturing and finishing processes is paramount to the Bullion & Refinery business line. The target for our lab is to complete in as short a time as possible the assay of the rough gold and rough silver deposits within one and a half days. We continually exceed the targets to ensure client satisfaction through speedy credit to their pool accounts and to facilitate continued production of anode, cathode and ultimately our fine Au and Ag bars and grains.

15:30

Now that the lab is quiet, if there is anything I need to concentrate on, this is the best time of the day. The instrument service technician has our XRF back up and running, and our chemist will be staying late to reprogram the software and have the unit awake and ready for samples by morning. The technicians are pleased that they will have the instrument available for the morning. Things went well today and now I'm on my way through High Security to exit, change and make my way back to the buses and home for dinner. As we say in Ottawa, 'à demain'. ■

Jonathan Forrest *began assaying in gold mining operations in the Timmins gold camp in 1974. He has worked from Newfoundland to British Columbia on the west coast as a Chief Assayer.*

His responsibilities included the operation of the site laboratory and, in many instances, the environmental impact, monitoring and reporting of those mining operations to the federal and provincial governing authorities. Before joining the Royal Canadian Mint in 2005, Jon led the efforts in his last position to become the first Canadian mining operations laboratory to achieve ISO 17025 Accreditation for both Mineral and Environmental testing.

If you are interested in taking part in the "A day in the Life of..." series, please contact: amy.berman@lbma.org.uk

Forecast Winners 2009

By Amy Berman, PR and Media Assistant, LBMA

Philip Klapwijk, GFMS Ltd

Congratulations go to all three winners, Philip Klapwijk, Rene Hochreiter, and Robin Bhar, who have taken home a one ounce gold bar for each metal won and in Philip Klapwijk's case, two bars.

The forecasters had the difficult job of predicting in January 2009 whether, economically, the worst was yet to come in 2009. **Philip Klapwijk**, GFMS Ltd, was a double winner. He predicted gold's average would be US$970, a mere US$2 off the actual yearly average of US$972. He also forecasted that silver would hit an average of US$14.40. The average for the year was US$14.67. **Rene Hochreiter**, Allan Hochreiter (Pty) Ltd., forecasted US$1,200 as an average for platinum, which was only US$4 off the actual average of US$1,204. Finally, **Robin Bhar**, Calyon Agricole CIB, had the closest forecast, predicting palladium's average for 2009 would be US$264.
The average was US$264.6.

Many thanks to **Metalor Technologies S.A.** for its generous donation of the prizes and to everyone who took part in the survey.

Robin Bhar, Calyon Agricole CIB receives his one ounce Metalor gold bar from Stewart Murray, LBMA Chief Executive

If you are interested in contributing in the LBMA Forecast or if you would like to receive a hard copy, please email Amy.Berman@lbma.org.uk

Silver Reference Materials

Now there are two

By Stewart Murray, Chief Executive, LBMA

The Silver Reference Materials (RMs) produced by Krastsvetmet of Russia on behalf of the LBMA are now available for purchase.
Good Delivery List refiners and LBMA Members that pre-ordered the materials at a discounted price have been invoiced for the cost of the materials plus the shipping cost and will be sent the materials as soon as payment is received. Unlike the gold RMs, which were released last year, the cost of the contained metal is included in the fixed price of the silver RMs, which does not therefore depend on the exact weight of each unit. Another difference from gold is that, because of the lower value of the contained silver, shipping will, in most cases, be much cheaper. This is because security carriers will only be used for destinations that cannot be served by regular courier services.

The silver RMs are sold as sets of two units (one of AgRM1 and one of AgRM2), with each unit being approximately 26 x 26 x 7 mm and weighing approximately 50 g.

For additional or new orders, the price for a set of two units is US$3,750 for LBMA Members and Good Delivery Refiners and US$4,500 for other purchasers.

Invoices will be in pounds sterling converted at current exchange rates. The additional shipping cost for most destinations will be less than £150 per set.

Similarly to the gold RMs, the two units contain different levels of 21 different elements in the range from 4 to 110 ppm. The target levels for each element were selected by the Project Steering Committee following consultation with GD refiners. Following the initial stage of manufacture (melting, casting and rolling of an ingot into a long strip of 7 mm thickness, and cutting this into units of 26 x 26 mm), the RMs were subjected to homogeneity analysis by both Krastsvetmet and the Rand Refinery, involving assaying of the contained elements on semi-randomly selected units, both on the surface and at depth. The resulting assays were analysed using ANOVA software, and the Committee subsequently declared the cast ingots to be sufficiently homogeneous to produce satisfactory RMs. The next stage, which proved to be longer than originally hoped, was for shavings from the materials to be analysed by 11 laboratories (whose names are also given in the copy of the Certificate on the LBMA website. (www.lbma.org.uk).

Dr Mike Hinds, the chairman of the project Steering Committee writes following about the challenges facing assayers in accurately determining the levels of the 21 added elements in the materials. Finally, at a meeting of the Steering Committee on 22 March, decisions were taken about which analyses should be included or excluded when calculating the certified contents (which can also be seen in the certificate).

The project has not only been a technical success (in providing reference materials in gold and silver that would not otherwise have been available): it has also been a financial success. And with the continued sales of the excess materials, after satisfying the initial order from GD refiners and Members, it is likely to benefit the LBMA's finances for several years to come.

As to the future, the Committee also reviewed the results of a survey of GD refiners about the number of different RMs that might be produced if the RM work were continued. Four possibilities were suggested in the initial survey:

– Gold Reference Material for range 99.5 - 99.9%
– Gold Reference Materials for range 99.9 - 99.99% with other elements requested
– Silver Reference Materials for range 99.9 - 99.99% with other elements requested
– Gold Reference Material for range 85 - 98% (for XRF and possibly for comparison with Fire Assay Analysis).

If you have an opinion on the relative value to precious metal laboratories, please contact the LBMA Chief Executive (stewart.murray@lbma.org.uk) or, alternatively, send us your views by completing the online survey on the website (www.lbma.org.uk). ■

LBMA Certified Reference Materials

Gold and Silver CRMs Available from the London Bullion Market Association

The LBMA promotes quality and good practice in the area of gold and silver refining and trade. The production and sale of Gold and Silver Certified Reference Materials represent part of this effort.

Format of CRMs

The Gold CRMs consist of a set of two rectangular blocks – 21 x 21 x 6 mm, weighing approximately 51grams each.
The Silver CRMs are sold as sets of two units (one of AgRM1 and one of AgRM2), with each unit being approximately 26 x 26 x 7 mm and weighing approximately 50 g.

Purchasing CRMs

The costs per set of CRMs include a fixed and a variable cost, which are as follows:

Fixed Cost Per Set of CRMs

Good Delivery List Refiners and LBMA Members:	US$3,750
Other purchasers:	US$4,500

Variable Costs Per Set

This consists of the shipping cost for both metals. Only in the case of gold, there is a further cost for the value of the contained metal.

For more information or to purchase LBMA CRMs, please visit the LBMA website (www.lbma.org.uk) or email mail@lbma.org.uk

Challenges in Determining Elements in LBMA Silver Reference Materials

By Mike Hinds, Chair, LBMA Reference Materials Project

To determine elements at low concentration levels (up to 1,000 parts per million – ppm) in precious metals, analysts typically dissolve known amounts of the metal in an acid. Once dissolved, the solution is analysed by a spectrometric technique such as inductively coupled plasma – optical emission spectrometry (ICP-OES) where the light intensity emitted from each element is compared to light intensity from solutions of known concentrations.

In the case of the Gold Reference Materials certified earlier, analysts used aqua regia (one part nitric acid plus three parts hydrochloric acid) to dissolve the gold matrix and all the other elements in the reference material – simple.

Silver is not so simple. Silver itself dissolves in nitric acid along with many other elements. There are 21 trace elements in the Silver Reference Materials. However, some elements do not completely dissolve in nitric acid or are not stable in that medium. Typically, many laboratories use hydrochloric acid to completely dissolve these elements. But in adding hydrochloric acid to a silver (nitrate) solution, the silver precipitates as silver chloride. This has to be filtered off and the hydrochloric soluble elements collected before they can be determined. So that makes two sample preparations: the first uses only nitric acid and the second uses both nitric and hydrochloric acids.

Once the elements are dissolved, they can be accurately determined using a spectrometric technique such as ICP-OES.

Also some new sample preparation techniques had to be developed to analyse elements such as rhodium. This was needed to ensure that these element concentrations could be confirmed by a variety of methods. During this process, members of the Steering Committee shared a number of sample preparation and element determination techniques.

Additionally, the Silver Reference Materials were checked by different gas analysers and a glow discharge mass spectrometer for dissolved gases such as oxygen and nitrogen.

The bottom line: several different sample preparations and determinations had to be completed and the results combined to certify all the elements in the Silver Reference Materials.

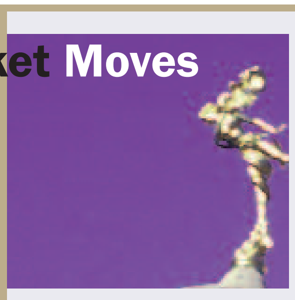
Thanks to all the laboratories that have taken the time to work on analysing the Silver Reference Materials: Metalor Technologies SA, Tanaka Kikinzoku Kogyo K.K, Rand Refinery, Aurubis, Royal Canadian Mint, Perth Mint, Cendres+Métaux SA, JSC Krastsvetmet, Umicore, Sumiko Techno-Research Co Ltd., and Matsuda Sangyo Co Ltd.

It's a good thing we started with gold – it's much simpler. ■

Mike Hinds *is Assay Chemist at the Royal Canadian Mint. He is responsible for developing new methods of analysis in developing reference materials for use within the Mint.*

Mike has been with the Royal Canadian Mint for 21 years, after getting his PhD in Analytical Chemistry from the University of Saskatchewan.

Market Moves



Edel Tully to **UBS Investment Bank** as their Precious Metals Strategist, with responsibility for forecasting and publishing research on the precious metals complex. Edel joins from Mitsui and Co. Precious Metals Inc where she was head of precious metals research; a role she held for four years. Prior to Mitsui, Edel was a researcher and lecturer from 2002 to 2006 whilst earning her doctorate in gold calendar seasonality dynamics at Trinity College, Dublin. Edel is chairwoman of the Public Affairs Committee of the LBMA.

Thomas Kendall from Mitsubishi Corporation to **Credit Suisse**. Thomas spent three years as Precious Metals Strategist for Mitsubishi Corporation where he was responsible for supply/demand modelling, price forecasting, contributing to trading strategy, and sales and marketing support. He will be moving to join Credit Suisse as Research Analyst covering gold, silver and platinum group metals markets. He will be based at their offices at Cabot Square in Canary Wharf.

Ben Corbould to **Standard Chartered, Bank, Singapore**. Ben is heading up the metals trading desk in Asia. Ben has over ten years of experience as a physical and derivative commodity trader, working for Macquarie as a metals trader before moving to Barclays Capital where he worked as head of metals trading in Asia.

CLEARED OTC LONDON GOLD FORWARDS

Risk mitigation for the London bullion community

Cleared OTC London Gold Forwards:

- Contracts remain OTC forwards in clearing
- Mitigation of credit risk by clearing OTC transactions through CME ClearPort
- More than 100 years of proven safety and security with CME Clearing
- Independent, neutral settlement valuations through a daily mark-to-market process
- All good forward maturities from tom to 10 years

Whatever risks you face in the London gold bullion markets – from counterparty credit to operations to settlement – you can count on CME Group's Cleared OTC London Gold Forwards to help mitigate them, and to provide enhanced capital efficiencies. Our post-trade clearing services let you privately negotiate and execute your trades off-exchange, but by clearing the trade through CME ClearPort, you can substantially mitigate your risk. Only CME Group offers you the flexibility you need and the security of central counterparty clearing. Learn more at **www.cmegroup.com/lgf**.

CME Group
A CME/Chicago Board of Trade/NYMEX Company

CME Group is a trademark of CME Group Inc. The Globe logo, CME, Chicago Mercantile Exchange and Globex are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange Inc. COMEX is a trademark of Commodity Exchange Inc. These contracts are listed with, and subject to the rules and regulations of COMEX and CME. Copyright © 2010 CME Group. All rights reserved.

REACH

An update on LBMA Action

By Ruth Crowell, Commercial Director, LBMA

On 8 March, the LBMA held its third Members' Seminar on REACH, the EU legislation requiring manufacturers and importers of chemicals to register with the European Chemicals Agency.

Presentations were given by Stewart Murray of the LBMA and Caroline Braibant of the Precious Metals and Rhenium Consortium (the Consortium). Copies of these presentations are available to download from the LBMA website (www.lbma.org.uk). The seminar covered two main topics: the joint LBMA/Consortium position paper on the status of gold Good Delivery bars under REACH and the options available to Members and Associates for obtaining the necessary access to the REACH registration dossier for each precious metal.

LBMA/Consortium Position Paper – Gold Good Delivery Bars

Stewart Murray updated Members on the status of the position paper on gold Good Delivery bars. The joint position paper argues that such bars, which are being imported essentially on behalf of investors and then held in the London vaults, should be excluded from tonnage calculations for REACH. The paper argued that bars are articles rather than substances and are therefore outside the scope of REACH. This joint paper was approved by the LBMA Management Committee, the Board of the Consortium, and was endorsed by two independent law firms that specialise in REACH. Seminar attendees received copies of the final paper, which had been submitted by the LBMA to the Health and Safety Executive, the Competent Authority for REACH in the UK.

Registration Dossier

Caroline Braibant's presentation focused on the options available to LBMA Members and Associates with regard to obtaining the rights to use the Consortium's registration dossiers for the various precious metals. LBMA Members and Associates can either become members of the Consortium or simply purchase a Letter of Access (LoA), which will allow them to refer to the Consortium's dossier when they register. Although these are provisional prices, Caroline was able to give the projected cost for membership in the Consortium versus the cost of purchasing a LoA (See Fig. 1). Please note these are only estimated costs; confirmed LoA prices will not be ready before July 2010.

Each LoA cost includes €30,000 generic costs that need only be paid once per company. For example, if a company wants a LoA for gold and silver (tonnage bands 1-10), it would pay €43,500 for gold and then only €12,500 for silver.

The LBMA recommends that Member and Associate companies that import precious metals into the EU should consider purchasing a Letter of Access rather than joining the Consortium. This would allow Members and Associates to control their costs in regards to REACH, as they would not be required to travel and participate in the biannual Consortium meetings, amongst others.
For further information on REACH or REACH Registration, please contact the LBMA Executive (mail@lbma.org.uk) or visit the LBMA website (www.lbma.org.uk).

Fig 1 - Estimated Costs of Consortium Membership versus Letter of Access

Now	Band	Membership cost (2007 - 20101)	LoA cost (2007 - 2020)
Ag	1 to 10	~ € 42,000	~ € 42,500
	10-100	~ € 44,000	~ € 45,000
	100-1000	~ € 54,000	~ € 55,000
	> 1000	~ € 167,000	~ € 175,000
Au	1 to 10	~ € 34,000	~ € 43,500
	10-100	~ € 40,500	~ € 51,000
PGM	1 to 10	~ € 33,000	~ € 44,500
	10-100	~ € 38,500	~ € 55,000

Please Note that these are only estimates. Final costs will not be available until July 2010.

Charitable Giving - April 2010

The GOFO & SIFO Non-Contributor Fines collected in 2009 have allowed the LBMA to make a donation to the St. Mungo's charity for homeless people

St Mungo's
Opening doors for homeless people

The LBMA is happy to be able to donate to St Mungo's Charity based in London and the South. St Mungo's creates more opportunities for homeless people to get permanent new homes and to find meaningful activities, learning and employment than any other charity. Their work focuses on three main areas:

- Providing emergency services.
- Supporting homeless people in their recovery.
- Preventing homelessness.

For further information or to contribute, please see St. Mungo's website: www.mungos.org.

The LBMA and the LME -- Data Partnership

Editorial Comment by Martyn Whitehead, Managing Director of Metal Sales, Barclays Capital

The LBMA and the LME team up to commercialise the LBMA gold forward curve.

"And you may ask yourself, well how did I get here?" - Once in a Lifetime, Talking Heads.

Many of you would have seen the recent press release announcing that the "LBMA has agreed to move into exclusive negotiations with the London Metal Exchange (LME) for the distribution and monetizing of the LBMA Forward Curve." The LBMA Management Committee thought it would be a good idea to communicate to the wider Membership the background to this announcement and how the Committee envisions how this data partnership with the LME might develop.

The LME will assist the LBMA in professionally compiling and distributing this curve whilst ensuring that it is robust and reliable. The market will retain the intellectual property of the forward curve which will be a truly representative data set for margining forward transactions which are put on exchange.

Background

Whilst the effects of the global financial crisis begin to fade, regulatory reform continues to gather pace. Many markets functioned efficiently through the crisis and this is especially true of the precious metals markets. However, as a result of the crisis, many regulators have advocated the migration of OTC markets onto various exchanges. Whilst a wholesale transfer of the OTC market is not envisaged, there has been some consensus within the market that it would be sensible to have the option to mitigate counterparty risk by clearing trades through a clearing house exchange. In their simplest form these optional "cleared forward trades" are trades which continue to be traded off-exchange OTC but which are then matched and novated on-exchange, where the clearing house becomes as the central counterparty (CCP) to the transaction. In this way, after acceptance of the trade by the clearing house, each party to the original OTC transaction take the counter party risk of the CCP rather than their original counterpart.

Two exchanges, the CME and LCH/LME have announced plans to launch a cleared forward market service. One of the bedrock components for any exchange offering this service is the ability to mark to market and margin the market participants. Having a robust and reliable forward curve for these purposes is a pre-requisite for market participants using such cleared services. The LBMA Management Committee recognised from the outset that it was vital that the London Bullion Market that should provide and ensure the reliability of this forward curve.

With the provision of a cleared forward market service by the exchanges, there was a requirement for the provision of a longer dated gold forward curve. Historically gold and silver forward curves beyond 12 months in tenor have remained the intellectual property of each market participant. Whilst the GOFO page on Reuters (provided by the eight LBMA Forward Market Makers) has provided a reliable mechanism for the development of the Gold Interest Rate market, it is limited in duration to 12 months. It was also recognised that the methods used to produce a reliable forward curve had to be more automated than the method currently used for GOFO, especially if the LBMA intends to charge for this new data set.

The LBMA and the Management Committee were quick to recognise that the intellectual property held by the market through forward curves, volatility surfaces, fixing data or clearing statistics represented some value for the market as a whole. The Management Committee created a new subcommittee, the "Precious Metals Data Committee" to investigate the value of these data sets and also the work involved in charging for them. The Data Committee chaired by Stephen Branton-Speak of Goldman Sachs, incorporated all eight LBMA Forward Market Makers, Natixis and was assisted by Ruth Crowell of the LBMA Executive. Although many data sets were discussed, the sub-committee agreed to begin only with a Request for Proposal (RFP) for the gold forward curve. The sub-committee indicated to possible data partners that there was scope to expand from this base but only at a later stage.

Data Commercialisation & Market Promotion – RFP

Once the decision was made to proceed only with the gold forward curve, the subcommittee then issued an RFP to 11 potential data partners. The RFP required that each company outline how a partnership with the LBMA could maximise the commercial value of our intellectual property as well as promote the market generally. The responses were wide and varied. At the first cut, it was decided to narrow the field to four service providers. These four companies were then invited to present a more detailed proposal to the sub-committee. After this exhaustive selection process and much further debate, the sub-committee recommended to the Management Committee that the London Metal Exchange would be the preferred partner in this venture. While the subcommittee recognised that any of the four remaining candidates could distribute data for the LBMA, it felt that the LME best addressed the wider issues involved when deciding between the four candidates. Upon review, the Management Committee approved the Data Committee's recommendation and has now entered into exclusive negotiations with the LME.

Going Forward – Partnership with the LME

The Management Committee has put together a negotiating team, chaired by the undersigned, to work on the remaining details of the partnership. All contracts will be reviewed and finally approved by the Management Committee. The LBMA will look to update the Membership as this project progresses.

The decision to partner with the LME in the commercialisation of our gold forward curve will hopefully provide a model for commercialising similar data for the Silver and PGM markets.

Whilst the project has yet to be completed, I would at this juncture like to thank the members of the Data Committee, the Forward Market Makers, the Management Committee and LBMA Executive who continue to give considerable time and effort into making this project a reality.

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

Bank Julius Baer of Switzerland was admitted as an Ordinary Member on 10 February, 2010. Calyon, London Branch, changed its name to Crédit Agricole CIB London on 8 February, 2010. Mitsubishi Corporation (UK) Plc changed its name to Mitsubishi Corporation International (Europe) Plc on 1 April, 2010.

Associates

Riddisiddhi Bullions Ltd of India was admitted as an Associate on 10 February, 2010.

As a result of the dissolution of the AGR Matthey partnership in Australia, the company ceased to be an Associate on 29 March, 2010. The Western Australian Mint, trading as the Perth Mint, was admitted as an Associate on 30 March, 2010.

NYSE Liffe U.S. LLC was admitted an Associate on 1 April, 2010.

GOOD DELIVERY LIST

The gold and silver refineries of the Shandong Gold Mining Co., Ltd., of China were added to the Good Delivery List on 14 January, 2010. This brings the number of Chinese refineries on the List to seven for gold and 13 for silver.

The gold refinery of Solar Applied Materials Technology Corporation of Taiwan was added to the Gold List on 25 February, 2010. The company's silver refinery was listed in June 2008.

The GDL accreditation for the Newburn gold and silver refinery in Perth, Australia was transferred from the AGR Matthey joint venture to Gold Corporation's subsidiary, the Western Australian Mint, trading as the Perth Mint with effect from 29 March, 2010. The Perth Mint is one of the oldest brands on the Good Delivery List, going back to the late 1920s when it was first listed by the London Gold Market as the Perth Branch of the Royal Mint.

COMMITTEES

Management

The Committee met in February and March, with a very full agenda on both occasions. The question of data commercialisation was one of the most important issues discussed. At its meeting in March, the Committee discussed the recommendations from the Data Subcommittee concerning the best way of commercialising the forward curve for gold. During the past six months, the LBMA Executive has been manually compiling a daily forward curve for gold based on contributions from the forward market makers. The aim is now to automate this process and to distribute the curve to all those interested in using it for benchmarking or other purposes. In March, the Committee decided to enter into exclusive negotiations with one of these, namely the London Metal Exchange, on the development of a system for compiling and marketing this data. See the editorial on page 20 for further information.

The PAC's recommendation that the LBMA's charitable donation for 2010 should be made to the St. Mungo's organisation, which supports London's homeless, was approved. The funds used for the donation derive from the fines that the Executive levies on market makers that fail to contribute to the daily GOFO and SIFO figures.

Physical

The option of using electronic weighing as an alternative to the use of the beam balance for gold bars is getting closer. The prototype electronic scale that has been proved to be suitable for this purpose by extensive testing in the London vaults is now undergoing type approval by the manufacturers.

On the Good Delivery front, the Executive has been kept busy processing a large number of applications for accreditation. In addition to the three new listings mentioned above, three companies are currently going through the technical assessment procedure. Proactive monitoring of listed refiners continues as before, but in addition, the Committee has considered two complaints from vaults about the unsatisfactory physical quality of some batches of bars received in London. The Executive has written to the refiners concerned stressing the necessity for Good Delivery bars to meet the standards described in the LBMA Rules. It is perhaps worth noting that if a GDL refiner wishes to sell bars (eg to a local fabricator) that do not comply with the physical quality or marking requirements of the LBMA, it can add the mark 'NGD' beside its brand mark. This indicates that the bars are not intended to be London Good Delivery, thus avoiding the risk of traders sending such bars to London and finding that they are rejected on arrival at the vault.

A meeting of the Good Delivery Referees took place in February. This considered a number of aspects of the way the technical assessments for GDL applications and Proactive Monitoring are carried out. It also recommended that a further assaying and refining seminar (which would be the fourth since the first one in 2005) should be held in the first quarter of 2011. Any suggestions for topics that might be included should be sent to the Chief Executive.

Public Affairs

The PAC held three meetings in the first quarter. The second of these was an open meeting, including the 'friends of the PAC' – who are assisting with the development of the Conference programme for this year's conference, which will take place in the Hotel Adlon, Berlin, from 26-28 September. It is not too late to suggest topics or speakers for this year's conference. Any suggestions should be sent to the Chief Executive.

For 2011, the plan is to hold the conference in Canada and the Executive is currently looking at a number of alternative venues. The date has been tentatively established as 18-20 September, 2011, though this may change. Again, confirmation of the details will appear on the website in due course.

The Committee has welcomed a new member – Grant Angwin of Johnson Matthey.

Membership

At its last meeting, the Membership Committee considered the arrangements for the Associate reviews, under which all Associates have to renew their sponsorship on a rolling three-year basis. The Committee's recommendation was that, rather than the required letters of support being requested from sponsors by the Executive, in future, the onus should be placed on the Associate itself to procure these letters, either from their existing sponsors or from new ones in cases where the Associate no longer has a bullion-based relationship with a previous sponsor.

Finance

The Finance Committee met in March to review the three-year budget for the period 2010-2012. At its next meeting in late April, the Committee will review the annual audited accounts for 2009, which are likely to show a substantial surplus, partly because of the increase in subscriptions but mainly due to the success of the 2009 Conference in Edinburgh and the Reference Materials Project.

The Finance Committee has also welcomed a new member, Alan Wallis of Comdaq Metals. This will mean that the Committee will have two qualified accountants amongst its members (the other being Terry Carroll of HSBC).

Reference Materials Project

The project Steering Committee met on 22 March to review the assay reports on the Silver Reference Materials from the 11 participating laboratories and then decide which should be included in the calculation of the certified reference values for the 21 contained elements. See the report on page 16.

Annual General Meeting

The LBMA Annual General Meeting will take place in the Armourers Hall, Coleman Street in the City of London at 5:30 pm on 23 June.

Any representatives of Members and Associates who wish to attend will be most welcome. There will be a drinks reception following the meeting, which is an ideal opportunity to meet other members of the market, something which is increasingly valuable in this age of trading via screens. Papers officially calling the meeting together with nomination forms for the Management Committee will be circulated to members in mid-May.

Biennial Dinner

The Biennial Dinner this year will be held on the evening of 25 November. The venue will again be the splendid Goldsmith's Hall. Details of the event (including the price) will be circulated to all Members and Associates nearer the time.

On the afternoon of the same day, the LBMA is organising a seminar that will allow those attending from overseas to get'more bang for their buck'.

The seminar will cover a number of topical issues, including those which will be of interest to the many official sector representatives who are expected at the dinner.

REACH

In early March, the LBMA submitted a position paper on Gold Good Delivery Bars to the Health & Safety Executive (the UK Competent Authority for REACH). The paper was prepared jointly with the Brussels-based Precious Metals and Rhenium Consortium and argued that these bars are considered to be articles rather than substances for the purposes of REACH.

The LBMA also held a seminar on 8 March (the third in the series) for those Members interested in the REACH legislation. See the article on page 19 for more information about the seminar.

LBMA Staff

It is a pleasure to congratulate Ms. Ruth Crowell on her promotion to Commercial Director with effect from 1 January 2010 and to welcome Ms. Kim Phillips as Operations Director with effect from 11 February 2010.

DIARY OF EVENTS

APRIL

26-28
The MMTA's International Minor Metals Conference
London
Email : sales@metalevents.com
Phone : +44 20 7840 014

MAY

18-20
International Gold Symposium
Peru
mjaramillo@snmpe.org.pe
T: +51-1 460 1600

19
LPPM Annual Dinner
London
www.lppm.org.uk

26-27
Shanghai Global Mining Investment Conference
Shanghai, Shanghai

28-29
London Global Mining Investment Conference
Stationers' Hall, City of London

JUNE

12-15
IPMI Precious Metals Conference
Arizona
www.ipma.org.uk

23
LBMA AGM
London
Armourers Hall
T: +44 20 7796 3067
www.lbma.org.uk

SEPTEMBER

26-28
LBMA Precious Metals Conference
Hotel Adlon
Berlin, Germany
www.lbma.org.uk

NOVEMBER

25
LBMA Biennial Dinner
Goldsmith's Hall, London
www.lbma.org.uk

facing facts

Paul Burton
Managing Director
GFMS World Gold Ltd

Copper Bottom for the Gold Mining Industry?

The gold mining industry has always faced challenges, whether they be technical or financial in nature.

It is a tough business trying to find and exploit one of the rarest, but most valuable, elements on the planet. Where precious metals are concerned, Mother Nature is often at her most capricious. Finding gold, or at least large quantities of gold, seems to be the biggest challenge facing the industry at the moment. Over the past 15 years, we have seen a migration of gold production away from the traditional 'big four' of South Africa, Australia, the US and Canada as mature deposits become exhausted and new territories open up as their political and economic system changes and their mining laws become more attractive to inward investors.

But while some of these developing regions of the world are prospective and still relatively under-explored, they are generally not offering up the big deposits that the industry thrived on in earlier years when South Africa's Witwatersrand, Nevada's Carlin Trend, Australia's Kalgoorlie and Canada's Timmins camps underpinned the growth of the mining industry. These camps proved to be vast treasure houses containing tens of millions of ounces of gold, which have supported many mining operations to this day.

But it is a characteristic of a mature industry that such multi-million ounce gold deposits are relatively scarce these days. Few have been found in recent years and that is despite record gold prices, which have spurred an unprecedented investment in exploration. The easy

deposits have been found already it seems.

As Richard Schodde, Managing Director of MinEx Consulting, told an audience at the industry's exploration event of the year, PDAC in Toronto in early March: "In the case of gold, the world is currently mining it faster than it is finding it. Furthermore, the average size and grade of gold discoveries continues to decline."

The largest gold producers face a constant battle to replace their annual production and they need to find the big ore bodies, the elephants, in order to maintain their momentum and growth. It's no good Barrick Gold, the world's largest gold producer with 2009 production of almost 7.5 Moz, spending exploration dollars and excessive management time finding and working 0.5 Moz deposits. It needs to find 10 Moz deposits than can support mining for many years at a rate that grows their production profile.

So if the industry is not finding enough of the gold giants, what's the solution? Do the gold companies bow to the inevitable and allow themselves to shrink? It doesn't take a business analyst to realise that such a suggestion would be swiftly dismissed in the corporate boardrooms in Toronto, Denver or Johannesburg.

Ever resourceful, some gold miners are changing tack in a bid to secure multimillion ounces in the ground. There is a discernable trend towards the acquisition and exploitation of copper/gold deposits. These deposits, usually described in geological terms as porphyry deposits, are often low grade but are huge in lateral dimensions and depth, and contain vast amounts of copper and gold. Their large size and the presence of more than one payable metal means that they can be profitably worked despite being very low grade. The scale of operations is many times greater than the traditional gold mine. Huge open pit mines feed the mills at rates commonly of 60,000 tonnes per day. Compare this with a typical South African underground mine, which may only mill that amount of ore in a month!

One of the largest porphyry mines is Freeport McMoRan's 90%-owned Grasberg mine, in Indonesia, which milled at an average rate of 238,000 t/d last year. This mine is relatively rich, with average grades of 0.98% copper and 1.1 g/t gold in 2009, and produced 1.64 Blb of copper and 2.98 Moz of gold in the year.

Grasberg is a very low-cost copper operation because of revenue credits from gold. Copper cash costs in 2009 were minus US$0.49/lb, with gold revenue offsetting mining costs to the tune of US$1.86/lb copper. Using co-product accounting, the cost of gold production was US$303/oz, way below the industry average.

Rob Krcmarov, Senior VP, Global Exploration, Barrick Gold, in a paper at GFMS World Gold's Toronto seminar in January, showed graphically that porphyry copper/gold deposits are not only some of the most common occurrences of gold in the world but they also boast the largest number of deposits containing with over 10 Moz of gold.

Grasberg has been in operation as an open pit since 1990 so the mining of large porphyries for their gold content is not new and a number of the major gold companies have associated copper at some of their mines. However, recently, there does seem to have been a step up in the level of interest in the porphyry deposits.

A perfect example of this was the wrangle at the beginning of the year between Barrick Gold and Goldcorp over an interest in the El Morro project, in Chile. This deposit contains 8.9 Moz of gold and 6.7 Blb of copper in Measured & Indicated resources. Barrick's notice in October last year that it wished to purchase Xstrata's 70% interest led the 30% owner, New Gold, prompted and financed by Goldcorp, to invoke its right of first refusal to acquire the majority ownership. So Barrick was thwarted there, at least for now (it has filed an action in Ontario against New Gold, Goldcorp and Xstrata in order to protect its rights), but it has acquired other Chilean copper/gold resources.

Barrick has agreed to acquire an additional 25% interest in the huge Cerro Casale project from its joint venture partner Kinross Gold, giving it a controlling 75% stake. Cerro Casale is one of the world's largest undeveloped gold-copper deposit, with reserves of 23 Moz of gold and 5.8 Blb of copper.

It is a project that has been evaluated countless times but never developed because the economics did not stack up at gold prices that prevailed throughout the last dozen years or so. Now, with the price of gold over US$1,000/oz, the project bears re-evaluation. Barrick has reported that the feasibility study optimisation work at this US$4.2 billion project has been completed.

Sticking with the copper/gold porphyry theme, one region where such deposits abound is Canada's British Columbia province, another region within the geologically active Pacific Rim, and here there are signs that a softer provincial government stance may lead to the eventual development of some of the well-defined projects there. Most recently, a junior company, Terrane Metals, received approval to build a mine at its Mt Milligan project. Mt Milligan hosts resources of 7.5 Moz of gold and 2.8 Blb of copper but at grades of only 0.33 g/t gold and 0.18% copper. Goldcorp holds almost 60% of the equity of Terrane.

The province was in the news two years ago when Teck Resources invested in NovaGold's Galore Creek copper/gold project only to find that the capital expenditure estimated in the feasibility study was grossly understated and so put project development on hold. Most recently, however, the news from the province is more positive.

Taseko Mines has received provincial environmental approval for its Prosperity project, with the green light expected from the federal government in Q3 2010. Prosperity's latest reserves are 11 Moz of gold and 4.2 Blb of copper. Another British Columbian producer, Imperial Metals, is permitting its Red Chris project, which looked fairly modest in size until the company discovered high-grade copper and gold beneath its planned open pit, which could lead to a vastly bigger and more profitable operation.

With the current interest in copper/gold deposits, it seems British Columbia might well be able to replace the jobs and income it lost from its logging industry, which has been decimated by several years of pine beetle infestation, with a revitalised mining industry. For their part, the large gold producers may focus their attention on the Pacific Rim and the potential its porphyry deposits offer for gold production in addition to the more traditional copper production.

Paul Burton *is Managing Director of GFMS World Gold, a company which undertakes equity research and publishes World Gold Analyst, a leading independent gold mining investment publication.*

Paul holds an MSc in Mining Engineering and an MBA from the University of the Witwatersrand, South Africa.
paul.burton@gfmsworldgold.com

The Alchemist is published quarterly by the LBMA.
For further information please contact Amy Berman, LBMA PR and Media Assistant
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The *Alchemist* is designed by Ion River, produced by Amy Berman

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for **a variety of sophisticated precious metals products**, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPM
GOOD DELIVERY REFEREE

Alchemist

The London Bullion Market Association ISSUE 59 July 2010

LBMA

In this issue

Gold in Chains Read Gregory Mthembu-Salter's article on page 14 to find out more about supply chain controls resulting from new legislation on minerals produced in the DRC (Congo).

LIQUID GOLD AND SILVER FUTURES ON NYSE LIFFE U.S.

WHERE THERE'S LIQUIDITY, THERE'S OPPORTUNITY.

NYSE LIFFE U.S. HAS THE VOLUME AND LIQUIDITY THAT TRADERS ARE LOOKING FOR IN PRECIOUS METALS FUTURES. OUR FULLY ELECTRONIC, TRANSPARENT MARKET OFFERS LIQUIDITY IN 100 OZ. AND MINI GOLD FUTURES AS WELL AS IN 5,000 OZ. AND MINI SILVER FUTURES. TRADE PRECIOUS METALS ON NYSE LIFFE U.S., A MARKETPLACE BACKED BY PHYSICAL GOLD AND SILVER AND THE EXPERIENCE OF NYSE EURONEXT. EXPLORE THE UNIQUE OPPORTUNITIES AT NYSE.COM/METALS OR CALL 212-656-4300 FOR MORE INFORMATION.

NYSE Liffe℠ U.S.

THE U.S. FUTURES EXCHANGE OF NYSE EURONEXT

©2010 NYSE Euronext. All rights reserved. No part of this material may be copied, photocopied or duplicated in any form by any means or redistributed without the prior written consent of NYSE Euronext. NYSE Euronext and its affiliates do not recommend or make any representation as to possible benefits from any securities or investments, or third-party products or services. Investors should undertake their own due diligence regarding securities and investment practices. This material may contain forward-looking statements regarding NYSE Euronext and its affiliates that are based on the current beliefs and expectations of management, are subject to significant risks and uncertainties, and which may differ from actual results.

Why Regulate Precious Metals

By Joel Cook, Global Head of Commodities Compliance, Standard Chartered Bank

Regulation in financial markets is in focus now more than ever. The succession of crises that has plagued global financial markets from 2007 right up to the present has placed pressure on governments and regulators to impose stricter controls on participants in financial markets.

In such a climate increased regulatory burdens may seem inevitable. But it is still worth taking a step back to consider whether regulation, and in particular regulation of precious metals markets, is a good thing.

Why do we choose to regulate financial markets at all? The basic driver is a perception that financial market forces, if left completely unchecked, would not always operate in a fair and equitable manner. The assumption therefore is that some sort of framework of rules is required to guide and restrict the activities of the various participants in those markets, so as to prevent any undesirable forms of conduct and promote both certainty and fairness.

In most financial markets there are imbalances in the level of information, skill or sophistication of the various participants in a market. This is particularly the case where there are both wholesale and retail participants. Regulations create levels of investor 'protection' so that less sophisticated participants can access the market safe in the knowledge that their lack of knowledge and experience will not be exploited. This is seen in the form of disclosure obligations, rules that require products or services to meet suitability and appropriateness standards, requirements on firms to manage internal conflicts of interest, etc.

Regulations may also increase certainty for participants operating in a market. For example, bullion market participants want to know that in a Loco London gold transaction the bullion they can expect to receive in settlement of a purchase will conform to certain minimum standards as to weight and fineness. The London Bullion Market Association (LBMA) Good Delivery Rules set out minimum specifications for Good Delivery Bars, and these rules help provide participants with certainty in their bullion transactions.

Similarly participants on a futures exchange want to be able to rely on the fact that all other participants are bound by rules of conduct that for example prohibit behaviour which may distort the market price for the futures contracts traded on that exchange. This helps to create certainty that the price 'discovered' through the exchange trading mechanism is reasonably reflective of prevailing market conditions and can be seen as a true market price.

Recent enforcement action in relation to NYMEX precious metals derivatives contracts highlights the importance placed on regulations to ensure that markets are free from manipulation. In April 2010 the US Commodity Futures Trading Commission (CFTC) ordered a US hedge fund manager to pay a fine of USD 25mn for attempting to manipulate the settlement prices of NYMEX platinum and palladium derivatives contracts, by engaging in a behaviour known as 'banging the close'. The CFTC also imposed restrictions on the hedge fund manager's trading around the closing period of the NYMEX platinum and palladium contracts. (http://www.cftc.gov/PressRoom/PressReleases/pr5815-10.html)

It is worth noting that although rules are typically imposed through legislation or directives (such as statutes or regulations which a firm must comply with) or through some sort of contractual arrangement (such as the rules of a trading exchange, platform or industry association, which a member firm contractually agrees to be bound by), rules may also be imposed through some sort of voluntary self-regulatory framework.

The London Code of Conduct for Non-Investment Products (NIPs) code is an example of such a voluntary framework. The NIPs code was drawn up by industry bodies representing the foreign-exchange, money and bullion markets, in conjunction with the Bank of England and with input from the FSA. It sets out the standards of conduct, and professionalism expected of participants in terms of their interaction with each other and with their clients.

Most rules, particularly those imposed through legislation, are backed by a threat of sanctions. In the event of improper conduct regulatory bodies may take enforcement action and impose censures, fines or other penalties. In recent times, possibly as a result of political pressure on regulators, fines imposed by regulatory bodies have become considerably more penal, with both the amount of fines and the number of disciplinary actions increasing.

In self-regulatory regimes the mutual self interest of the parties involved and simply the desire to avoid negative publicity and damage to reputation can be enough to ensure compliance with the regulations. Compliance with the NIPs code for example is essentially on a voluntary basis. It relies on the professional and wholesale nature of the market and the broadly similar levels of knowledge and sophistication of its participants, to ensure that market conduct conforms to the required parameters. Allegations of breaches of rules or improper conduct are bilateral matters to be decided between the two participants and there is no body that will impose sanctions for breaches of NIPs code provisions, although arbitration may be sought for dispute resolution.

The simple fact of having regulations does not in itself create complete certainty for market participants. While a regulatory regime can offer a degree of certainty as regards the quality of a commodity being delivered under a contract or the acceptability of various forms of conduct, markets also appreciate longer-term certainty. Participants will want to be comfortable that regulations will not be subject to frequent or arbitrary change so they can make long-term plans accordingly. Concern over whether current regulations will still be in force in a year, or perhaps whether a change in government will lead to the introduction of new regulations, can impact strategic planning within firms.

It is also beneficial that any changes to regulations will be subject to some sort of industry consultation process so that market practitioners have the opportunity to make comments on regulatory proposals and contribute to the process of forming regulations. Furthermore it is preferable that proposed regulations are subject to some sort of cost/benefit analysis to ensure that regulations are not unduly restrictive and allow financial markets the scope to develop new products and risk management solutions.

Some regulatory regimes seek to address these issues and the broader question of why regulation is a good thing, through terms of

reference and operating principles. The UK for example has five statutory objectives set out in the Financial Services and Markets Act 2000 (FSMA), which its regulator, the Financial Services Authority (FSA), must seek to achieve. These are: to maintain confidence in the financial system; to promote public understanding of the financial system; to secure the appropriate degree of protection for consumers; to reduce financial crime and to contribute to the protection and enhancement of the UK financial system. This last objective concerning financial stability in the UK is a very recent addition and a direct response to the recent financial crisis.

In addition the UK FSA also has principles of good regulation which include the requirement that any restrictions imposed on financial markets must be proportionate to the benefits resulting from those restrictions, and the need to minimise adverse effects on competition that may arise from regulations.

There is also a political dimension to the drive to regulate. Regulations may be influenced by popular viewpoints or reactions to contemporary market events. This is particularly the case recently where in many western jurisdictions, there has been a public perception that existing regulatory regimes failed and that this failure was a material contributor in the global financial crisis. In both the US and the EU, considerable amounts of new regulation have been proposed and are at various stages of implementation.

Such regulatory 'knee-jerk' reactions may even fail to achieve the desired objectives. The CFTC's proposals to introduce position limits in energy contracts and potentially even metals contracts in order to curb supposedly harmful speculation have attracted much criticism, both for their argued negative impacts such as increasing uncertainty and driving trading on to less transparent venues such as the OTC market, but also for being too large and potentially ineffectual.

The direct benefits of new regulations to the actual market participants may not always be completely clear. The various regulatory proposals in the US and EU calling for increased transparency in OTC derivatives markets for example, are arguably more

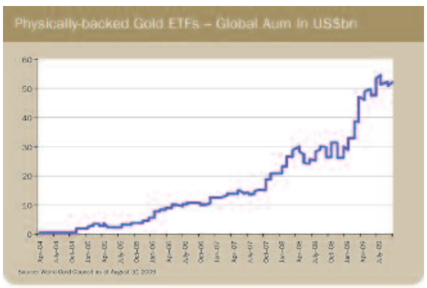


Figure 1: Source: ETF Securities – 'Setting the Gold Standard – An investor's guide to the gold market and gold ETFs/ETCs'.

beneficial to the regulators themselves and the wider public to whom governments and regulators are ultimately responsible, than to those transacting in OTC derivatives where the desire for contractual flexibility or confidentiality may have driven the decision to utilise the OTC market in the first place.

In some developing financial markets, regulations are used to restrict access to certain types of market participants and to allow domestic markets to develop in a controlled and sustainable manner. Such limitations may be in the form of restrictions on memberships of domestic exchanges or trading platforms, foreign exchange controls or import / export licence requirements. This can frustrate the attempts of international firms to get involved in these markets.

Regulation is therefore generally a good thing, adding certainty as well as 'levelling the playing field' for market participants, by addressing imbalances in the relative sophistication of the various participants in a market.

Why though is this relevant to precious metals markets? Although the majority of gold production is used for jewellery, retail investment in precious metals has typically been confined to a consumer market, with a distinct wholesale market in which banks, central banks and industrial producers and consumers make up the bulk of the participants.

Recent concerns over the stability of traditional forms of investment such as shares, bonds and currencies have however led to increased retail participation in the wholesale precious metals markets. Over the last 8 years a considerable number of precious metals Exchange Traded Funds (ETF) or Exchange Traded Commodities (ETC) products have been set up. Since 2004 the total value of the assets under management for physically backed gold ETFs has increased from zero to around USD 50 billion (see Figure 1). As well as ETFs or ETCs in gold and silver which have traditionally been attractive to retail participants, more industrial metals such as platinum have recently become the subject of ETFs. In addition new forms of access product which allow retail investors to gain exposure to precious metals prices such as dual currency deposits where gold is the second 'currency', have also been developed.

Some have argued that increased financial activity in commodity markets has resulted in increased commodity prices and the amplification of commodity price volatility. Investment demand for gold for example has increased dramatically with the demand coming from ETFs representing a larger proportion of overall annual demand. Between 2004 and 2010 annual gold demand contribution from ETFs increased from around 150 tonnes to around 600 tonnes

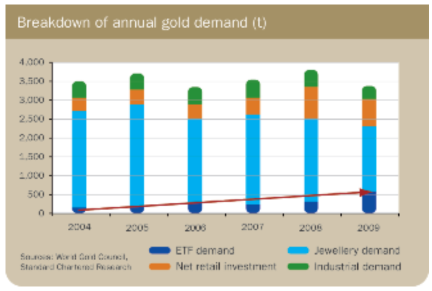


Figure 2

while overall annual demand has remained relatively unchanged (see Figure 2). At the same time there has been significant correlation between this increased demand for gold from investment sources, with the underlying price of gold (see Figure 3).

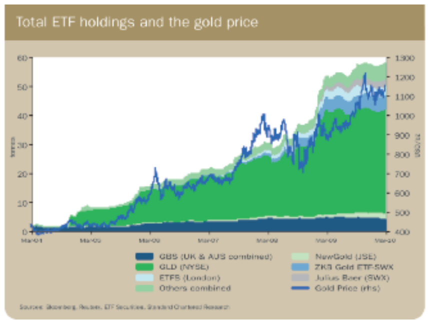


Figure 3:

These new forms of retail participation in wholesale precious metals markets add to overall liquidity, but at the same time bring a greater responsibility to ensure fairness and certainty for all market participants. Those investing in precious metals ETFs must be comfortable that the price of the underlying metal is not subject to manipulation. Regulations are critical in giving all participants, including retail investors, that level of comfort.

So despite being restrictive and often complex, regulation is generally a positive force. The challenge however is to ensure that regulatory frameworks are equitable, proportionate, consistent, tied to clear objectives and promote a stable environment in which to conduct long-term business. In an ideal world, regulations would be consistent across all jurisdictions. While the harmonisation of financial regulations across the European Union and the recent attempts by the G20 nations, to promote consistent regulations are certainly positive developments, this is a long way off. There will always be a political dimension to regulation and while there are still multiple independent nations there will always be separate national agendas and priorities.

Prior to the global financial crisis, some regulatory regimes had begun moving towards what is known as 'principles-based regulation'

whereby a set of broad outline principles forms the foundation of the regulatory regime, with specific regulations and guidance supplementing and expanding upon the basic principles. Greater focus is placed on qualitative values, desired outcomes for customers and modifying participants' behaviour, rather than quantitative prescriptions and the imposition of punitive sanctions for breaches.

Because they are less prescriptive, these regulatory regimes also tend to be less adversarial in nature. The UK FSA is perhaps the most well-known exponent of such an approach. A possible consequence of the global financial crisis and the FSA's perceived failure to anticipate and prevent the crisis in the UK, is that this will be seen in part as a failure of less prescriptive and less adversarial principles-based regulatory systems. This may in turn lead to a move toward more detailed regulations, a more adversarial approach and more stringent sanctions for breaches. ■

Joel Cook

is Global Head of Commodities Compliance, Wholesale Bank Compliance at Standard Chartered Bank (SCB). Prior to joining SCB, Joel was Compliance Officer for the Equities and Futures businesses at UBS AG, Singapore Branch. Joel was previously a Compliance Officer at JPMorgan in London where he provided Compliance coverage for JPMorgan's European commodities division and helped to build out the physical commodities business in several asset classes including European power and gas trading and international oil trading, as well as being a member of Futures & Options Association Metals Working Group. Prior to this Joel was a Compliance Officer at Morgan Stanley where he provided compliance support and coverage for various businesses including the Commodities, Futures and Fixed Income businesses.

Gold...

A fully integrated precious metal management company, Rand Refinery is the world's largest single-site refining and smelting complex, with a reputation for quality, reliability and integrity built up over eight decades.

RAND REFINERY LTD. SOUTH AFRICA

Based in Germiston, in Gauteng, South Africa we are conveniently placed for access to Johannesburg's OR Tambo International Airport.

We are committed to the highest standards in all aspects of our business:
- LBMA accreditation
- LBMA referee status
- Dubai Metals and Commodities Centre accreditation
- OHSAS18001 (health and safety)
- ISO14001 (environmental)
- ISO9001 (quality)

We offer:
- The latest technology in both refining and smelting
- a knowledgeable team, steeped in the business
- analytical services
- stringent security
- a comprehensive vault, clearing and air forwarding service
- fabrication of a range of value-added products

Tel +27 (0) 11 418-9000 Fax +27 (0) 11 418-9231 gold@gold.co.za www.randrefinery.com

A Day in the Life of a Site Operations Manager

By Keith Davies, Site Operations Manager, JBR Recovery Ltd

08.00

Arrive, log in to security, review overnight activities with security, check status of security cameras, change clothing and proceed into the production plant.

JBR, based in West Bromwich, UK, is a leading smelter and Good Delivery refiner of 999 silver, but also processes some Au and PGM metals.

The materials processed are from secondary waste sent for recycling and can be anything from low-grade paper, wet sludges, ashes, liquids and metallics, including Non Good Delivery bars and fine silver grain for recasting. Some of the materials can be quite difficult to cope with and can cause a few issues with housekeeping. I will need to check this out later because we have a routine Environment Agency (EA) inspection later this morning.

Grab a cup of coffee, check overnight and early morning emails, respond to the most important, delete the spam and file the rest for later. Check today's planned production schedule and the expected material receipts booked in for today.

Most important job of the day – the site tour – goods inwards, sampling, incineration, smelting, cupellation, refining and bullion areas. Housekeeping looks good – at least the shift operators are doing their bit!

During the site tour have stand-up briefings with the Shift Supervisor and Refinery Supervisor – review overnight/weekend production activities and incidents. Discuss today's production requirements, hanges to procedures and let the supervisors know about site visitors. Obtain feedback on proposed and recent changes for discussion later with the Operations Director and other managers.

Refinery – it's a bullion despatch day – ensure the Refinery Supervisor and Production Controller are ready to check bar weights, issue weight lists and assay certificates.

We're due to start recasting a recent delivery of another refiners' NGD bars today, but we haven't yet received the assay reports from the Lab for deleterious elements. I'd heard a rumour that the ICP had broken down yesterday!

Laboratory – chase the Lab Manager for assays from trial samples from overnight smelter production. The Inductively Couple Plasma-Atomic Emission Spectrometer (ICP-AES) is out of action, engineer is due tomorrow; what is it with these machines? At least the old Atomic Absorption Spectrophotometers (AAS) are still churning out some results.

Engineering Manager – discuss what repairs are scheduled/ongoing and if any plant is out for preventative maintenance? The annual summer shutdown is only a couple of months away; how are preparations going for the annual maintenance repairs and plant modifications ?

Discuss any issues with the Production Manager, particularly incineration and sampling (any witnesses in today, what plant and operators will be required, is any material likely to cause any deviation from our routine sampling procedures). Touch base with the Operations Director.

09.30

Time for a coffee. The last one is still on my desk – cold! Got to get silver production plan spreadsheet prepared for issue to Commercial department in readiness for discussion at the lunch-time senior management meeting.

10.00

Scheduled visit by an EA inspector - meeting with the Safety, Health and Environment (SHE) Manager, Operations Director and self.

SHE Manager accompanies the EA inspector on a routine site inspection. But I'm on standby to respond if any issues are raised by the EA inspector during the tour.

11.00

We're making changes to the smelter operating parameters – brief meeting with the Operations Director to discuss results to date and the proposed next stage.

Follow-up meeting before the EA inspector leaves. The inspector has requested more information on a proposed new process we have been working on that is a departure from our normal line of business. Trying to diversify our processes under PPC (Pollution Prevention and Control) can be very slow –all changes and trials have to be agreed and authorised in advance.

12.00

Despatch of 999 GD bars – check weights and strapping, and oversee security operation.

13.00

Senior management meeting – review latest news about customers, (Commercial department wants to change production priorities yet again), new material, production

plan, HR issues, update from the morning's meeting with the EA inspector, discuss the latest increases in the cost of furnace coke.

Usual outcome of this meeting – another six jobs to add to my 'To do list! – along with the sandwiches and indigestion!

14.30

Unexpected visit from a key supplier of raw materials. He is advising significant price increases, which are not acceptable, so this is going to lead to more work to try and find an alternative supplier.

15.00

Prepare for an internal audit, ISO 14001. An external audit is scheduled for next month.

16.00

A training session is planned for tomorrow for several shift operators. Liaise with the SHE Manager, who is running the session, about timetable and content.

17.30

Discuss plant status with the Engineering Manager; is all set for the night shift? Discuss contingency plans and back-up if any plant is only temporarily fixed.

Discuss furnace (smelting) operation with the Shift Supervisor and confirm what we want the night shift to do.

17.00

Prepare shift log book – leave instructions for the night shift.

17.30

Notify security of scheduled visitors and vehicles for tomorrow. Set security alarm systems, change, shower, set off for home. It's been a busy, but interesting, day!

Kettle's on and the dog's waiting to go for a walk. The night Shift Supervisor calls to say that a smelter operator has phoned in sick. Discuss contingency options and make note to discuss the attendance record of this operator with his manager in the morning.

Keith Davies *joined John Betts Refiners (as it was then) in May 1984 as an analytical chemist for several years for Foseco. Promoted to Laboratory Manager in October 1985, Keith eventually transferred to a production operational role in April 1991, and in September 1996, was appointed Site Operations Manager.*

If you are interested in taking part in the "Day in the Life of..." series, please contact: amy.berman@lbma.org.uk

Electronic Weighing of Gold

A Success Story

By Douglas Beadle

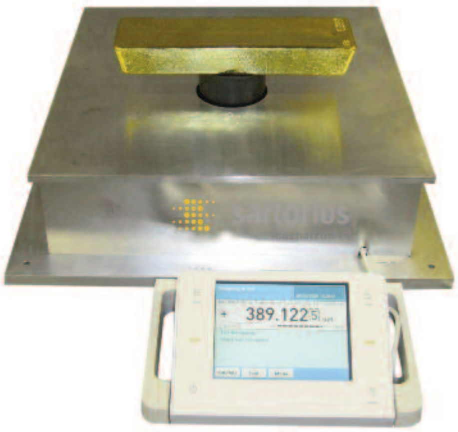
In mid-May, a demonstration of a new electronic scale suitable for weighing large gold bars took place at one of J.P. Morgan's vaults. The participants included representatives of all the London vaults. By the end of the demonstration, all were convinced that the new scale, which had been developed by Sartorius AG, could match the accuracy and precision of the beam balance, which until now, has been the only way that these bars could be weighed in the London vaults.

This marked the culmination of a six-year project to find an electronic scale for gold that might be acceptable to the London market.

The majority of weighing practitioners will concede that, ultimately, the most accurate method of weighing gold to the exacting standards of the London bullion market is a traditional well-maintained beam balance – as long as this is combined with the necessary experience on the part of the operator. Beam balance weighing is, however, a time-consuming process and, in addition, the regular servicing of such beam balances is a very specialist job that can be undertaken by very few highly skilled technicians.

For these reasons, the LBMA Management Committee decided in June 2004 to set up a working party, reporting to the Physical Committee, to look at the possibility of permitting gold to be weighed in the London market not only on traditional beam balances but also on electronic scales. The intention was not to eliminate traditional beam balance weighing but to provide an alternative, thereby helping to maintain London's status as the prime physical gold clearing centre in the world. The desire to investigate electronic weighing also reflected the fact that most gold refiners and many other trading centres already use electronic scales without problems (even if they may be weighing to less exacting standards than apply in London).

At the outset, it was not envisaged that it would take six years to reach this point. So why has it taken so long to find a scale with the appropriate performance? There were a number of reasons. Firstly, trialling a scale has to be fitted in with a vault's daily workload and, over the last few years, the London vaults have had to deal with an unprecedented volume of metal coming into, and sometimes going out of, London. Secondly, having identified what appeared to be the most suitable scale available at the time, exhaustive trials were conducted to establish the accuracy and suitability of the scale in a busy vault. During the trialling, a bar is initially weighed on a traditional beam balance and then on the electronic scale being tested (scale 1). If the results of the initial trial look promising, another identical scale (scale 2) is introduced and the vault weighs the bar on the beam balance against both scales 1 and 2. The final step in the process is for scale 2 to be moved to another London vault and for the first vault to weigh the bar on both the beam and scale 1; the bars are then shipped to the second



vault, which weighs beam balance against scale 2, following which all the results are compared. Each such trial typically involves weighing something in excess of five tonnes (approximately 400 bars), but often more. Throughout such trials, repeatability, particularly on very tight bars, is crucial and it was this factor that became a major problem. It was concluded that the first scale could not match the accuracy of the beam balance and as a more accurate scale was not then available, this led to the project being put on hold for about a year.

Some two years ago, the German scale manufacturer, Sartorius AG, offered to produce a prototype scale for testing that would be much more accurate than the scale previously trialled.

However, there was a further complication in that in order to comply with EU weighing regulations, the troy ounce indication would have to be expressed in display steps of 0.005 troy ounces before rounding, whereas metric indication would be permitted in display steps of 0.01g, equivalent to approximately 0.0003 troy ounces. Given that the LBMA weighing rules require bars to be traded in multiples of 0.025 troy ounces, the troy display steps would be too large to enable the correct rounding. It was not possible for the LBMA to consider changing its weighing rules to accommodate the metric requirements by abandoning the 0.025 troy ounce multiple.

Consequently, it was agreed that the Sartorius prototype would be type-approved as a metric scale, meaning that the legal weight would always be stored internally in metric, but the scale would have the facility to enable the operator to switch the display to show the troy ounce equivalent. The Sartorius scale incorporates an integrated Alibi memory for saving the date, time, legal-for-trade metric weight, scale serial number and transaction number so as to establish an automatic audit trail linking the troy ounce weight back to the initial legal metric weight. In this way, the EU weighing regulations are complied with and no change is required to the long-established LBMA weighing rules.

Following further extensive trialling, carried out by the two main London vaults, the results were analysed by the LBMA's weighing consultant, Jagger & Jagger, which concluded that the prototype scale did indeed meet the London market's requirements, leading to the demonstration mentioned above.

Obviously when using any beam balance or scale, it is essential that environmental conditions should be as constant as possible. For example, a draught could easily affect the accuracy of a scale. During the weighing trials, the vaults manufactured their own draught shields, but this was not without its problems as it was found that the material from which the shields were made gave rise to a build-up of static electricity. Also it was necessary to have a shield to protect the scale from damage if a bar were accidentally dropped on it. Therefore, as part of the overall package, Sartorius will also provide a specifically made draught excluder. By addressing such issues in a uniform way from the outset, it is hoped to maximise the repeatability of weighing results no matter where in the world the scale is used.

There are two further steps that must be completed before the LBMA can approve the use of electronic weighing in the London market as an additional method of weighing gold.

Firstly, Sartorius must obtain EU Type Approval in Germany (where the scale is manufactured). Given Sartorius's experience as a scale manufacture, obtaining Type Approval is not expected to be a problem and should only take a few months. Sartorius has confirmed that it has received sufficient orders from the London vaults to justify the additional cost of submitting the new scale for type approval.

Secondly, the LBMA will wish to consult all the approved weighers in the London market that purchase the new scale once they have accumulated sufficient experience in using it.

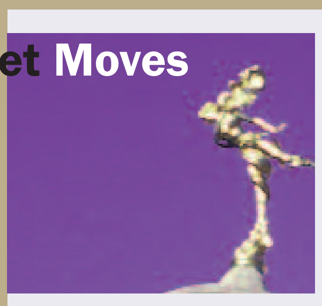
Looking ahead, the LBMA does not intend to restrict electronic weighing to the new Sartorius scale, but its specifications will provide a benchmark that any alternative will have to equal or exceed. In addition, even when electronic weighing is approved, it is likely that the vaults will continue to make use of beam balances, particularly for weighing bars that only just pull their declared weight (commonly known as 'tight' bars).

It is hoped that the project will reach a satisfactory conclusion by the year end and that the additional approved method of weighing gold will assist vaults to weigh accurately, efficiently and more quickly than before, the huge quantities of gold that will inevitably continue flowing into the London market.

Douglas Beadle

acted as a consultant to the LBMA until March 2010 and was involved from the outset in the project to find a suitable scale for the electronic weighing of gold. Prior to 2004 he was employed in the bullion department of NM Rothschild when he was the company's representative on the LBMA Physical Committee.

Market Moves



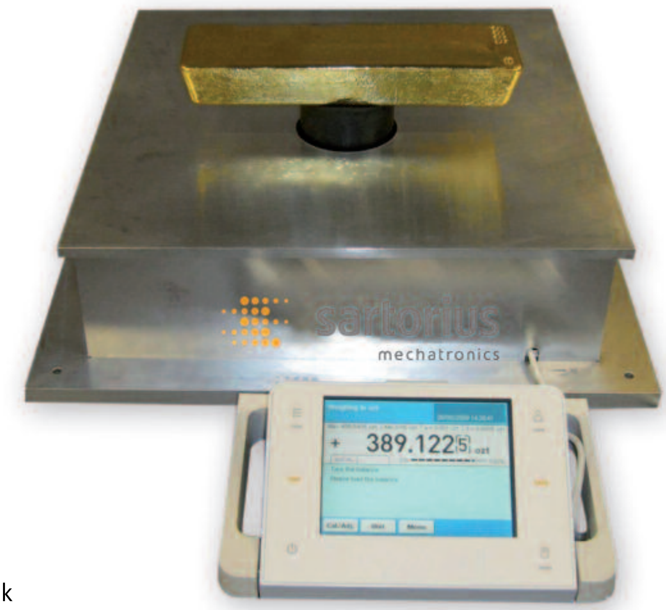
Tony Hill has joined **Mitsubishi's** London precious metals trading desk. Tony previously worked at Investec, Rabobank and Barclays.

Matthew Turner has joined **Mitsubishi** as precious metals strategist, based in London. Matthew was previously with VM Group and prior to that worked for the World Gold Council.

sartorius
mechatronics

Sartorius Gold BULLION SCALE

The first electronic balance specifically designed for the bullion market!



- Fast response typical weighing time of 4 secs per bar
- Easy data storage via an SD card or directly to an approved PC
- Low maintenance costs, easy to use and easy to calibrate
- Simple loading of bullion bars giving a quick overall measurement time

Sartorius Mechatronics Ltd. UK
Longmead Business Park
Blenheim Road
Epsom Surrey, KT19 9QQ

Phone: +44.1372.737102
Fax: 44.1372.729927
Web: www.sartorius-mechatronics.co.uk

DIARY OF EVENTS

2010

AUGUST

27-29
India International Gold Convention 2010
Goa
Email: register@goldconvention.in
www.goldconvention.in

SEPTEMBER

26-28
LBMA Precious Metals Conference
Berlin
www.lbma.org.uk
T: 020 7796 3067

29-30
ICGLR-OECD Joint Consultation on Responsible Supply Chain Management of Conflict Minerals
Kenya
Email : nana.shodu@oecd.org

NOVEMBER

25
LBMA Biennial Dinner
London
Goldsmith's Hall
www.lbma.org.uk
T: 020 7796 3067

2011

FEBRUARY

7-10
Mining Indaba Conference
South Africa
www.miningindaba.com

MAY

17-19
World Mining Investment Congress
London
www.terrapinn.com/2011/mining/
T: 020 7092 1000

23-28
ALTA Nickel-Cobalt-Copper, Uranium & Gold Conference
Australia
www.gold.infomine.com

Sustainable Recycling of Electronic Scrap

By Christopher W. Corti, COReGOLD Technology and Christian Hagelüken, Umicore Precious Metal Refining

Gold plays an increasingly important role in industrial applications, particularly in electronics, despite its larger use in jewellery and investment products. As the annual statistics show (Gold Survey 2010, GFMS Ltd, London), some 300t or more of gold are used annually in electronic components such as ICs, contacts and circuitry, the latter notably as gold bonding wire.

Sales growth of electronic devices continues to boom and their in-built features continue to become 'smarter and quicker' each year, which has led to a substantial net increase in gold demand over recent years, even though specific gold content is being driven down due to thrifting and miniaturisation. At the end of their use, electronic and other electrical product scrap offer an important recycling potential for the secondary supply of gold into the market. With gold concentrations reaching 300-350 g/t for mobile phone handsets and 200-250 g/t for computer circuit boards, this scrap is an 'urban mine' that is significantly richer in gold than the sources of the primary ores today. However, as a forthcoming paper points out (C. Hagelüken and C.W. Corti, Gold Bulletin, vol 43 (3,) 2010), the 'mineralology' of such scrap products is very different to those of primary ores. Such scrap contains up to 60 different chemical elements that are intimately interlinked in complex assemblies and sub-assemblies. They are usually associated with organic materials that often incorporate halogenated flame retardants. Thus, specialised metallurgical processes with extensive offgas treatments are required to recover the gold and a wide range of other valuable metals in a cost-effective and environmentally sound way. Equally importantly, the collection of such scrap from millions of households and businesses requires organised logistics to collect and bring the scrap to the recovery and refining facilities; this is undoubtedly a bigger challenge than the primary ore supply chain.

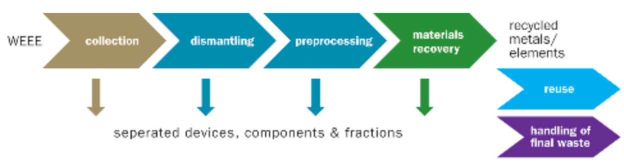


Figure 1: Recycling chain for End-of-Life electronics

Gold's importance to the economics of recovery

Recovery of gold and other valuable metals from such scrap involves a complex metallurgical flowsheet and requires state-of-the-art recovery technologies that are available in large-scale, integrated smelter-refinery operations. At the Umicore plant in Belgium, for example, pure gold and 16 other metals are recovered with high yields.

Perhaps what is not adequately appreciated is that the recovery of gold is important to the economics of recycling electronic scrap. It is the gold that makes the recovery of all the valuable metals economically worthwhile. Thus a 'design for recycling' approach to the use of gold in electronic equipment assumes an importance when material choices are being made by OEMs; simply seeking use of cheaper alternative materials as substitutes for gold can damage the economics of recycling devices at the end of their life. One needs to take the complete life cycle costs into account at the design stage.

The European Directive on Waste Electronic and Electrical Equipment (WEEE) aims to provide a 'closed loop' economy, that is, to foster environmentally sound reuse and recycling, and to preserve natural resources. This is about sustainability of resources. However, in Europe and elsewhere, there are currently severe deficits in the recycling chain that hinder the achievement of a high overall recovery rate of gold and other metals. This is due in part to substandard processing of scrap in many 'backyard' recycling operations, often through the illegal and dubious export of end-of-life electronics to many developing/transition countries around the world. There is also an environmental impact, as discussed below.
We should also note that recycling of WEEE in the EU and elsewhere has become a legal requirement.

The composition of electronic equipment

The materials contained in scrap electronic equipment are large in number and value; some are valuable and some are toxic or hazardous. Typical chemical elements found include:

Precious metals such as gold, silver and palladium, and to a lesser extent, platinum and ruthenium
1. Base and special metals such as iron, copper, aluminium, nickel, zinc, tin, cobalt, indium, gallium and selenium
2. Hazardous metals such as mercury, beryllium, cadmium, arsenic and antimony
3. Halogens – bromine, fluorine and chlorine
4. Other substances such as organics/plastics, glass and ceramics.

If such scrap is landfilled or not treated in an environmentally sound way, then it poses a high risk of environmental damage.
The valuable materials that it contains are not recovered and reused, and so this increases the need to mine new metals from primary resources.

Typical compositions of a number of electronic items are shown in the upper part of Table 1. We should note that these figures are indicative; actual content can vary significantly but the magnitude is correct. In terms of weight, plastics and steel tend to dominate, but in terms of value, the lower part of Table 1, gold and the other precious metals dominate. Gold and other precious metals makes up more than 80% of the value in PC boards, cell phones and calculators, and around 50% of the value in TV boards and DVDs. We note copper is next in value terms.

Hence, it is very evident that any net decrease in precious metal content substantially reduces the net recoverable value from the electronic scrap and, thus, the motivation to recycle scrap. It is worth noting that the complete recycling chain needs to be renumerated, as Hagelüken and Corti discuss in their paper. The recycling requirements – technical processes and emission controls – depend on the composition of the scrap, and taking the various values between types of scrap into account, means that the mixing of different types of scrap in the collection and pre-processing stages can influence the recycling returns in a negative manner.

Gold: The potential market supply from recycling

The electronic use of gold at around 300tpa amounts to about 12% of the total annual mine production of gold. Its efficient recovery from electronic scrap (WEEE) therefore represents a substantial potential recycling resource. If we take the case of mobile phones, for example, global sales of 1,300 million in 2008 equates to about 31 tonnes of gold, 325t of silver, 12t of palladium and 12,000t of copper. With batteries, an additional 4,600t of cobalt can be added. Taking cumulative sales of mobiles up to 2008, this increases to 170t of gold, 1,800t of silver and 70t of palladium.

If we add the sales of PCs and laptops, these potential supplies of precious metals equate to a significant proportion of total mine production: 4% for gold, 3% for silver, 16% for palladium, 20% for cobalt and <1% for copper. For the broader electronics market, the market supply is more substantial.

The 'green' credentials of recycling WEEE

Being a rich source of gold compared to primary ores, the urban mine of WEEE is economically attractive. If we factor in the high CO2 impact of primary gold production, the recycling of scrap becomes more attractive from a sustainable standpoint. Recycling has a much lower carbon footprint if state-of-the-art technologies are used. Clearly, WEEE scrap cannot replace all primary gold production; it is complementary in the drive for a more sustainable use of gold.

weight-share	Fe	Al	Cu	plastics	Ag (ppm)	Au (ppm)	Pd (ppm)
monitor-board	30%	15%	10%	28%	280	20	10
PC-board	7%	5%	18%	23%	900	200	80
mobile phone	7%	3%	13%	43%	3000	320	120
portable audio	23%	1%	21%	47%	150	10	4
DVD-player	62%	2%	5%	24%	115	15	4
calculator	4%	5%	3%	61%	260	50	5
value-share	**Fe**	**Al**	**Cu**	**sum PM**	**Ag**	**Au**	**Pd**
monitor-board	4%	14%	35%	47%	7%	33%	7%
PC-board	0%	1%	13%	86%	5%	69%	12%
mobile phone	0%	0%	6%	93%	11%	71%	11%
portable audio	3%	1%	73%	23%	4%	16%	3%
DVD-player	15%	3%	30%	52%	5%	42%	5%
calculator	1%	4%	10%	85%	6%	76%	3%

Table 1: Value versus weight distribution for typical electronic devices (March 2010 prices)

The challenges in recycling precious metals from WEEE

There are several stages involved in the recycling of WEEE (see Figure 1), and the overall recovery rate will depend on the efficiency and effectiveness of each stage. The high precious metal yields achieved in the recovery stage, if state-of-the-art technologies are used, are insignificant if only a low proportion of WEE is collected or there is a large loss of gold in the dismantling and pre-processing stages. Today, less than 20% of the gold recycling potential is being realised from European WEEE due to the inefficiencies of the initial stages of the process chain. The collection stage is the weakest part of the chain. There is still a long way to go in Europe, and in many other countries, in organising efficient collection. Governments have a major part to play here and must take this aspect seriously.

The biggest loss factor currently is that much WEEE is exported to countries in Asia and Africa, for example, for treatment or just for discarding. Such scrap is usually treated by low-tech 'backyard' recycling methods that have dramatic environment and health impacts on workers and local communities (see paper by Hagelüken and Corti for further discussion on this aspect). Moreover, treatments are highly inefficient in terms of metals recovery, often focusing on 'cherry-picking' a few valuable metals; even for gold, yields are often lower than 25%.

Concluding remarks

This article has shown that the recycling of gold and other valuable metals from electronic devices at the end of life (WEEE) has a significant potential impact on the sustainable supply of gold and other metals to meet the needs of our modern society. In addition, gold has a vital role to play in the economics of recycling such scrap. Thus, a 'design for recycling' approach is needed in specifying materials used in new equipment manufacture by OEMs, especially gold. Thus, gold is the 'paying metal' that triggers recovery of other scarce precious and special metals that otherwise would not be economic to recover. Such an approach needs to be combined with innovative business models that encourage a more comprehensive collection of consumer goods at their end of life.

There are legal requirements in Europe for a 'closed loop' recycling system under the EU WEEE Directive, but currently this is far from the reality. Too much scrap is exported and poorly recycled, with a consequential damaging impact on environment and local communities. This loophole needs to be closed. Governments and manufacturers of electronic products have a major role to play here in encouraging efficient collection systems and in enforcing existing legislation.

Acknowledgements

This article is adapted from a paper by Christian Hagelüken, Umicore Precious Metal Refining, and Christopher Corti, COReGOLD Technology, to be published in Gold Bulletin, vol 43 (3) in September 2010. This can be downloaded free from www.goldbulletin.org when it is published. The contribution and support of Umicore is gratefully acknowledged.

Christopher Corti

is Managing Director of his consultancy, COReGOLD Technology and has over 30 years experience in the precious metals industry. Chris was formerly Managing Director, International Technology at the World Gold Council, London, responsible for jewellery technology support programmes and promotion of new industrial applications for gold from 1994 to 2004. He was Editor of Gold Bulletin journal (1996-2009) and Chairman of the WGC-sponsored international Gold conferences held in Vancouver (2003), Limerick (2006) and Heidelberg (2009).

Dr. Christian Hagelüken

heads the department for business development & market research in Umicore's Precious Metals Refining business unit. Before his present occupation he held various management positions in the precious metals department of Degussa AG.

Christian has 20 years experience in precious metals recycling. He has made numerous contributions to professional books, journals and conferences on topics related to recycling and sustainable resource management. He is among others a contributor to the UNEP-OECD Resource Panel, and to the Raw Materials Initiative of the European Commission. Christian holds university degrees in mining engineering and industrial engineering from RWTH Aachen, Germany, where he also received his Ph.D. in 1991.

Insights Into Investing in Gold

By Kevin Feldman, Managing Director of U.S. Marketing for iShares, Blackrock

Overview of the gold market

Rising market volatility, global economic uncertainty and geopolitical unrest have increased interest in gold as both a short- and long-term investment. In fact, during 2009, world investment in gold is estimated to have more than doubled from 2008 levels.[i]

The world gold market is active, with annual demand averaging 4,034 tonnes[ii] over the 10 years ending December 31, 2009. Key market participants include:

Mining companies and producers, including scrap merchants and recyclers

1. Bullion banks, which may offer services such as physical gold purchases and sales, hedging and risk management, inventory management for industrial users and consumers, and gold deposit and loan instruments
2. Central banks, such as the US Treasury, which hold gold bullion as a reserve currency
3. Professional and private investors, such as large hedge and mutual funds, day traders on futures exchanges, and retail-level coin collectors, and
4. Commercial and industrial users, such as the jewellery, electronics and dental industries.

Virtually all the gold that has ever been mined still exists today in one form or another. It is estimated that existing 'above-ground' stocks of gold (gold that has already been mined) amounted to 165,000 tonnes at the end of 2009, spread across multiple sources as shown in Figure 1.

Jewellery and central banks have historically been the largest stores of gold. However, private investments, through physical bullion and investment products, have become increasingly important. Indeed, during 2009, investor demand exceeded jewellery demand for the first time since 1980.[iii]

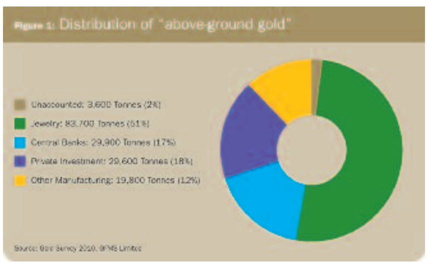


Figure 1: Distribution of "above-ground gold"

The price of gold

Many factors influence the price of gold. Central banks have historically held large positions in gold; as a result, announcements and activities by those banks have influenced the supply and demand of gold. Fluctuations in the value of the US dollar, political uncertainties and economic concerns around the world, hedging activities by gold producers, and trading activities of speculators also help drive the price of gold. Figure 2 illustrates how the price of gold has changed in response to global and economic events since the US dollar was decoupled from gold and the price of gold was allowed to free-float.

Gold is a physical asset that is accumulated, rather than consumed. This differentiates it from investment assets such as equities and fixed income instruments (which are claims on future cash flows), other commodities such as oil (which are consumed), and paper money (which can be more easily destroyed). These traits are among the reasons why gold may perform differently than other investments.

There are several ways that investors may use gold as part of a larger investment strategy.

Potential 'safe haven' during political or economic uncertainty

1. Portfolio diversifier over both long- and short-term horizons
2. Inflation hedge and store of value
3. Hedge against a devaluing dollar.

Potential 'safe haven'

Figure 2 illustrates how gold has historically maintained its value during times of economic or political uncertainty. Investors have also often retreated to gold when equity markets are struggling. As Figure 3 shows, gold exhibited positive performance during four of the five worst quarters of the S&P 500® Index's performance since 1973. In addition, gold exhibited positive performance during

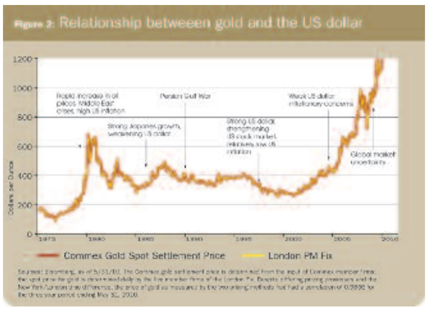


Figure 2: Relationship betweeen gold and the US dollar

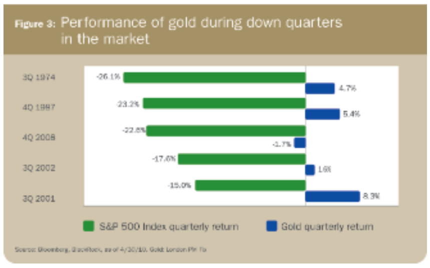


Figure 3: Performance of gold during down quarters in the market

seven of the 10 worst quarters in the S&P 500® Index's performance since 1973.[iv]

During these periods of market dislocation, gold has offered investors a safe haven and store of value.

Portfolio diversification

Many investors today already diversify their portfolios across styles, sectors and geographies. By including new asset classes that have low historical correlation to asset classes that are currently in their portfolio, investors can help further reduce portfolio volatility. Additional sources of diversification can be particularly helpful when equity correlations around the globe rise, as they did during the 2008 credit crises.

Gold has historically shown little to no correlation to major asset classes, including commodities. And while the price of gold is volatile, gold has historically displayed lower volatility than major asset classes over both long and short time periods (Figure 4).
As a result, a small allocation to gold may help improve the risk/return trade-off of investment portfolios.

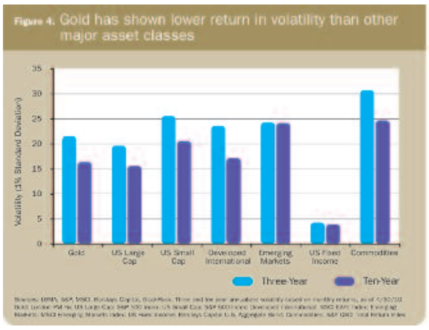


Figure 4: Gold has shown lower return in volatility than other major asset classes

Potential hedge against rising inflation

Rising inflation can be a result of two drivers, both of which may have an effect on the price of gold. Inflation can be the result of economic prosperity, in which case, increased consumer wealth may drive an increased

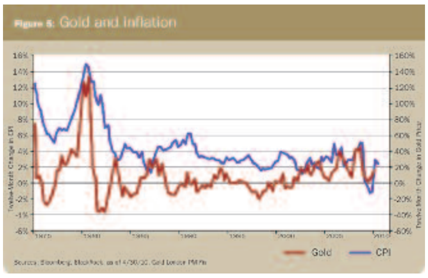


Figure 5: Gold and inflation

demand for luxury goods such as jewellery. In addition, inflation may be caused by relaxing monetary policy and increased money supply under times of economic distress. In this case, the price of gold may rise as investors seek to protect their wealth during economic uncertainty.

As Figure 5 shows, gold's price has generally moved as inflation has changed, making it a potential hedge against inflation concerns.

Potential hedge against devaluing dollar

The US dollar is widely viewed as the world's main trading currency. Gold has historically been regarded as a good hedge when the dollar weakens relative to other currencies.

Figure 6 shows the historical relationship between the price of gold and the US Dollar Index. The US Dollar Index is a measure of the value of the US dollar relative to a basket of foreign currencies. When the US Dollar Index is positive, it indicates a strengthening US dollar. As Figure 6 shows, a strengthening US dollar has historically been negatively correlated with gold.

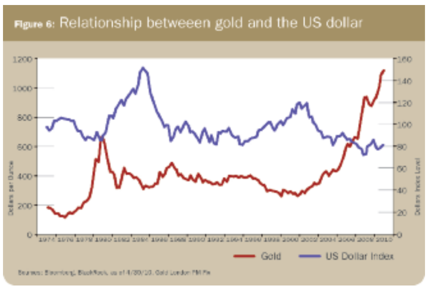


Figure 6: Relationship betweeen gold and the US dollar

Traditional ways to access gold

Historically, investors looking to add gold to their portfolios had three primary options to choose from.

Physical gold

Holding bullion, jewellery, coins and gold certificates provides pure access to gold. These forms of gold exposure, however, generally are not as liquid as holding a security (like a stock or futures contract) and may be impractical or costly to store, buy and/or secure.

Derivatives and futures contracts

Derivatives and future contracts have predominantly been limited to large institutional investors with the resources and experience to administer these positions themselves.

Investments in the equities of mining stocks or in precious metal mutual funds

Prior to the introduction of exchange traded products, mutual funds presented the most viable option for individual investors or small institutions seeking to invest in gold, because mutual funds provide convenient access to gold-linked investments at generally reasonable costs and low investment minimums. There are approximately 20 mutual funds, encompassing over \$29 billion in assets, providing exposure to gold.[v] Investing in the equities of mining companies, however, provides imprecise exposure to gold given that mining companies may hedge their exposure to the price of gold. The five-year average correlation of precious metal mutual funds to the gold spot price is 0.75, while the five-year average correlation of previous metal mutual funds to the S&P 500® Index is 0.41.[vi]

Exchange traded products

Exchange traded products represent a recent innovation for accessing the gold market. These investment vehicles typically offer the ability for investors to buy and sell their investment in gold through a brokerage account. Within exchange traded products, there are several approaches for delivering gold exposure.

Equities

These products typically gain exposure by investing in equities tied to the gold market, such as gold-mining companies. These products typically have less historical correlation to gold and higher historical correlation to the equity market than products holding physical gold or investing in gold futures.

Gold-based futures

These products hold gold futures contracts and typically roll those forward as necessary to avoid taking physical delivery of gold. While these products are more directly linked to the price of gold, they may diverge from the actual spot price of gold because of the roll costs associated with accessing gold via the futures market.

Physical gold

These exchange traded products, usually structured as trusts, offer investors participation in a trust that holds actual physical gold bullion. Because they hold physical gold, these products offer the most direct access to the current price of gold.

Conclusion

Investor demand for gold has been increasing amid global economic and political uncertainty. There are several options for investors interested in using gold as part of a short- or long-term investment strategy. Exchange traded products backed by physical gold offer investors an innovative way to access the price of physical gold. ■

[i] Source: GFMS, Gold Survey 2010. GFMS Limited is an independent precious metals research organisation based in London.
[ii] One 'tonne' is equivalent to one metric ton, which is equivalent to 1,000 kilograms or 32,150.7465 troy ounces.
[iii] Source: Ibid.
[iv] Sources: Bloomberg, BlackRock, as of April 30, 2010.
[v] Source: Morningstar, as of April 30, 2010.
[vi] Source: Morningstar, as of March 31, 2010.

Kevin Feldman *is the Managing Director of U.S. marketing for iShares, a division of BlackRock. In his role, Kevin has responsibility for all U.S. iShares marketing activities to financial advisors, individuals and institutional investors. Previously, Kevin was Director of Global Web Solutions, where he had responsibility for web marketing, portfolio analysis tools and global product data.*

Prior to joining BlackRock, Kevin was the head of retail marketing at Vanguard, where he had responsibility for retail marketing strategy, programs and promotion to 6 million retail and 401(k) clients and prospects. Previous roles at Vanguard included leading the Client Insight function and leading sales and marketing strategy for Vanguard's high net worth business.

Before joining Vanguard, Kevin worked for Charles Schwab, where he held management positions in the retail, institutional and technology divisions.

Kevin received his M.P.A. from Harvard University and a B.A. from the University of California, Los Angeles. He holds various U.S. securities licenses and is a Certified Financial PlannerTM.

Gold Industry

Due Diligence and the DRC

By Gregory Mthembu-Salter, UN Group of Experts

The Group of Experts on the Democratic Republic of Congo (DRC) received its latest mandate from the UN Security Council in Resolution 1896, in December 2009. The Group for the past 10 years has investigated DRC armed groups, including whom their friends and allies are, how they obtain their weapons and how they pay for these.

One of the consistent findings of the reports of the Group over the decade is that an important source of funding for armed groups in the DRC is the minerals trade. Eastern DRC, where the conflict is mostly played out, is rich in gold, tin, tantalum and tungsten. The region is scattered with deposits of these metals, all worked by artisanal miners. The mineral ores then travel from the deposits along a variety of supply chains to the outside world, and armed groups enrich themselves by collecting rents from these supply chains.

It is a sanctionable activity for anyone to provide support, direct or indirect, to armed groups. Several companies, including two gold traders, have already been sanctioned by the UN Security Council for trading in minerals from which DRC armed groups had previously collected rents, resulting in the freezing of their assets and an international travel ban.

In Resolution 1896, the Council called on companies trading, processing or consuming DRC minerals to exercise due diligence to ensure they were not providing indirect support for armed groups. The Council also asked the Group to recommend to it guidelines that it might issue to companies about how to practise this due diligence. The Group is currently engaged in drawing up these recommendations and will report to the Council with them in October 2010.

The Group's interim report S/2010/252 published in June this year outlines its work to date on this issue. In summary, the Group proposes a risk-based due diligence approach, in which companies ascertain the level of their exposure to the risk of supporting armed groups and then devise strategies to mitigate the risk. The Group further proposes that these strategies and their effectiveness should be evaluated by an independent third-party audit mechanism.

For companies to ascertain the risk of their supporting armed groups, they need to know:

1. Where exactly in the DRC their minerals came from
2. The details of the supply chain between themselves and the mine
3. Which armed groups got paid along the way and how much.

This represents a major challenge to the gold industry. An estimated 40 tonnes of gold was exported from the DRC last year, but almost all of it left the country unofficially. Traceability systems to track supply chains between DRC gold mines and refineries are weak to non-existent. There have to date been few significant efforts by the industry to improve traceability.

Yet this needs to change. The tin and tantalum industries are taking steps to introduce traceability systems. The gold industry needs to follow suit. Increasing the pressure, legislation is working its way through the US Congress that could result in the ban on imports of Congolese 'conflict minerals'. Additionally, NGOs that have until recently largely focused on the tin and tantalum industries are now turning their attentions to the gold and jewellery sectors.

The gold industry, and gold refineries in particular, need now to develop traceability systems to find out where Congo's gold is travelling to and where it came from in the DRC. Work must also begin on tracking which armed groups got paid along the way. The Group is keen to engage with the gold sector on this issue. We await your inputs on this important issue. ■

Gregory Mthembu-Salter *is a consultant to the UN Group of Experts on the Democratic Republic of Congo, tasked with bringing recommendations to the UN Security Council on due diligence guidelines for companies trading, processing and consuming Congolese minerals. He was formerly the finance expert for the Group, in 2007/08. He is also a long-standing author with the Economist Intelligence Unit about Central Africa, and a researcher for a variety of institutions, including the South African Institute for International Affairs and the Institute for Security Studies, focusing on African political economy.*

International Regulation

Conflict Gold

By Ruth Crowell, Commercial Director, LBMA

The LBMA has been approached by and met with several groups regarding forthcoming US legislation and international regulations concerning conflict minerals including gold. These groups include the UN Working Group of Experts on the Democratic Republic of Congo (DRC), the OECD, ITRI (International Tin Research Institute) and the World Gold Council. The various types of pending legislation are described below with the most important being the US Congo Conflict Minerals Act.

On July 15, 2010, after being passed in the House of Representatives, the US Senate passed the Dodd-Frank Wall Street Reform and Consumer Protection Act (also known as the Financial Reform Act). A key provision that was added to the Bill will require US-listed companies to disclose whether they use minerals from the DRC or neighbouring countries. Companies will have to detail the measures they have taken to avoid sourcing tin, tungsten, tantalum and gold from armed groups in the DRC.

Assuming the Act is now signed by the President, it is expected that the SEC will set out guidelines in the next year regarding the required due diligence on mineral supply chains. These requirements would affect many participants in the gold supply chain including miners and refiners, commodities traders and banks, and even jewellers, fabricators and other users of gold.

US - Congo Conflict Minerals Act (Sen. Brownback)

This Act finds that armed groups that are abusing human rights and destabilising the Congo region are fighting over and profiting from the production and sale of certain minerals, termed 'conflict minerals'. The Bill was supported in its passage through Congress by Republicans and Democrats, and although initially aimed at tin, tantalum and tungsten, was amended to include gold. The Act will require US-listed companies to provide information on how they have carried out a due diligence on their supply chains. It also gives the SEC powers to require companies to report on this aspect. The Act will apply to companies for which gold is a necessary part of the products they make and sell. The Secretary of State will determine after five years whether the armed groups in the Congo continue to benefit from these minerals.

OECD due diligence guidance for responsible supply chain management of minerals from conflict-affected and high-risk areas.

This draft due diligence guidance puts forward a framework for companies to manage risks in the supply chain structured around the procedural steps that companies should take to:

identify the factual circumstances that companies should consider while trading, handling, refining, manufacturing or selling minerals originating from conflict-affected and high-risk areas;

1. detect actual, potential or perceived risks by assessing the factual circumstances against applicable standards;

2. devise sound risk management and mitigation strategies as appropriate, including the categorisation of such factual circumstances and related risks as acceptable, unacceptable or susceptible of improvement.

The draft guidance is based on the supply chain of cassiterite, tantalum and wolframite as a case study. It is expected that the principles, standards and procedural steps will be applicable to other minerals as well (e.g. gold) and to supply chain aspects of minerals from both artisanal and industrial origin as appropriate. This draft guidance is also intended to pave the way for the development and implementation of comprehensive certification schemes of mineral resources, the implementation of which requires the performance of due diligence.

Responsible Jewellery Council

In April, the RJC announced that it is investigating the feasibility of developing a standard and process for independent, third party certification of chain-of-custody systems in the jewellery supply chain for both gold and diamonds. The stated aim is to assist RJC Members and other stakeholders who may wish to seek voluntary certification of chain-of-custody systems as a complementary element to the RJC certification of responsible business practices.

UN Group of Experts on the Democratic Republic of Congo

The Group is currently drawing up recommendations for the UN Security Council on due diligence guidelines for companies importing, processing or using minerals from the DRC. The primary aim of this due diligence is intended to enable companies to avoid providing indirect support to Congolese armed groups that are collecting rents from mineral supply chains in the country.

- Brought by the management team who invented Gold ETFs/ETCs
- 100% LBMA 'Good Delivery'[1] investment grade bars
- Traded and settled as a share through your stock broker or bank[2]
- Open ended and can be created and redeemed to demand
- Multiple market makers and traded in USD, EUR and GBP on all major Exchanges
- Physical delivery available
- Part of the 'Exchange Traded Gold' stable a World Gold Council initiative

For more information T: +44 (0) 20 7448 4330
www.etfsecurities.com

The advertisement is issued by ETF Securities Marketing LLP ("ETFSM") and is intended for and directed towards persons who are considered professional investors (as defined in the UK Financial Services and Markets Act or its equivalent under applicable law or regulation in the relevant jurisdiction) and have professional experience in investing. It has been approved for the purposes of Section 21 of the Financial Services and Markets Act 2000 ("the Act") by Flow Traders B.V.PHAU is issued by ETFS Metals Securities Ltd (MSL). GBS is issued by Gold Bullion Securities Ltd (GBS). MSL and GBS are each regulated by the Jersey Financial Services Commission. The United Kingdom Listing Authority (UKLA) is the 'home regulator' for purposes of listing and passporting the prospectus under the Prospectus Directive.

The products in this advertisement may or may not be suitable for a particular investor. You should obtain your own independent financial, taxation and legal advice before making any decisions about any investment. Investment in the products discussed carry with it certain risks, including those set out in the relevant prospectus, which can be obtained from the ETFSM at +44 (0)20 7448 4330 or info@etfsecurities.com. All codes listed are for the London Stock Exchange.

1 'Good Delivery' as defined by the LBMA in relation to the standard of gold bars. Please see prospectus for more information.

2 Brokerage fees may apply.

etf Securities

Once more unto the breach, dear friends

Editorial Comment by Tim Wilson, Managing Director, JPMorgan

There comes a time in the evolution of most products when a bold step is taken, with vision and commitment, to foster and encourage their development. Traded markets are no exception. Success for the risk-takers may not always be guaranteed, but sometimes the environment presents a set of opportunities where success is a more predictable outcome. My view is that now is the time for the London Bullion Market to look to the traded gold market in Asia for its future development.

Since the formation of the LBMA in 1987, itself a bold and noteworthy step in formalising and shaping the trading environment we all benefit from today, there have been constant discussions and efforts to refine and develop the market. The number of debates and articles about transforming the LBMA into the International BMA are too numerous to recount, but discussion has rarely been translated into action. Normally, the discussion gets sidelined by other priorities and a view that "if it ain't broke, don't fix it". Well that is indeed so for the legacy business, but from my vantage point, there is a great opportunity for those bold enough to grasp it.

There are some rather well-known statistics that put this opportunity into perspective and they are worth recounting as a reminder of the direction of the market's momentum.

Investment

• In 2009, Asia accounted for over 82% of gold bar hoarding (not just the latest craze for ETFs – but sustained personal investment in treasured assets held in personal accounts and storage facilities). India accounts for 9.5% of the world's total gold holdings and in recent years has consumed around 25% of the world's annual gold output, mostly for the manufacture of high-carat investment jewellery.

Production

• In 2009, gold production in Asia grew by 16%, or 91t, accounting for almost half of the global increase. Within this region, the two largest country gains were recorded in Indonesia and China. As is well known, in 2007, China took over from South Africa as the world's biggest gold producer. It remained the largest producer in 2009 (13.3% of global production), followed by Australia (9.4% of global production). In 2009, China produced 314t of gold (up 11% on 2008). Production in China has increased by 80% in the past ten years.

Growth

• The population growth in the emerging markets is destined to have positive implications for gold demand, e.g., in Vietnam gold has a higher significance than in the Western world - the Vietnamese per capita demand is more or less on par with the German equivalent, although German per capita GDP is 40 times higher than that of Vietnam. And over 50% of the world's population already lives in Asia, so that world economic growth are likely to boosted by developments in Asia for generations to come.

But there is also the tangible awakening of a collective will to develop further many regional markets in Asia and there is a growing recognition that international markets should accommodate fully and meaningfully Asian time zones and practices.

"What's the issue from an LBMA perspective ?", you may argue, after all, that London, with all its history and credibility, still sees most of the flows. After all, there is still only one true gold reference price (the London 'fix'), while other markets trade at a differential to the fix based on grade, transport, tax and policy parameters. Again correct, but only to a point. It is no coincidence that the fastest-developing financial markets are in Asia and that most of the new commodity exchanges proposed globally are Asia-based. The operators and owners of these exchanges know, as the famous villain 'Slick Willie Sutton' knew, if you desire to access wealth immediately, stick close to where the money is.

JPMorgan has recently announced the opening of an LBMA-linked gold vault in Singapore – a first for the region in having a fully commercial gold vault, tied to a global trading platform, where markets will be made for loco Singapore delivery, allowing clients and the LBMA professional market full access to some of the most active financial markets in a rapidly growing region. Established in parallel with some of the great names of collectibles and valuables – amongst them Christies, whose clients continue to see compelling logic in domiciling their physical assets in havens safe from retrospective claims – we are extremely confident that our investment, although not without its challenges, will reap rewards.

Our research has shown us that investors and traders of gold (the great prudential asset) would really value trading a liquid gold market in their waking time zones, as well as having their asset safe and close to them. You just never know when you might need it…which after all, is exactly the point. Whilst the current market has done an admirable job servicing the needs of the established investment community, there beckons a new community with a hunger and appetite for the unique investment characteristics that gold represents and presents.

At a recent investment bank flagship conference on China in Beijing, attended by some 2,000 of the world's China active fund managers, investors and corporates, one of the keynote addresses was, for the first time, on gold. Not a coincidence. We were after all at the centre of one of the world's great re-emerging economies, that over the past millennia has had a passion for gold and an appetite for trading it. Balancing a portfolio of sizzling Shanghai property with an investment in tradable gold, of ascertainable provenance, and complemented by access to a liquid global market for portfolio optimisation, doesn't sound so maverick.

The LBMA has recently announced that it is negotiating with the LME in the commercialisation of its forward curve. But these Ls need not mean Limited to London. I am sure it has not gone unnoticed amongst the Asian trading community that the LME has made an unequivocal commitment to the region. "Ah, obvious for them", you say. I would argue that it's just as obvious for us and that some of the discussions, motivations and finally justifications that the LME used to support its decision are even more compelling for the bullion markets.

We as Market Makers and Members should be embracing the opportunity to cement our position as the pre-eminent gold trading platform, to expand and promote the benefits associated with the highly accredited, reliable and international LBMA Good Delivery List. This is no missionary zeal, this is hard-headed economics of proactively capitalising on a dominant market position. Let us not just discuss the opportunity once again, agree about the lucrative prospects and then choose to do nothing. Would it be appropriate to suggest that an Asia initiative should be one that is an agenda item on every LBMA committee, to ensure that we capitalise on our position, and derive maximum value for our members, as well as the growing number of participants in the global bullion market?

Let us try again, one more time. ■

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

ABN-AMRO N.V. Following its name change from Fortis Nederland, ABN-AMRO was admitted as a Full Member on 1 July, 2010.

The unconnected Member with a similar name - ABN-AMRO (Australian Branch) – has resigned following its merger into the Royal Bank of Scotland.

Associates

ETF Securities Ltd was admitted as an Associate on 14 April, 2010.

As a result of the Associate review process, two companies (Fastmarkets and Alfred H. Knight) were unable to obtain renewed sponsorship from existing members and, as a result, their Associate status was revoked. This does not prevent them from reapplying if they are able to provide the necessary three sponsor letters.

GOOD DELIVERY LIST

The gold refinery of Atasay Kuyumculuk Sanayi Ve Ticaret A.S. of Turkey was added to the Gold List on 7 May, 2010. At a ceremony organised by the company and held in Goldsmiths' Hall, the Good Delivery certificate was presented to its Chief Executive by the LBMA Chairman. Atasay is the first Turkish refinery to achieve Good Delivery accreditation.

The gold refinery of L'azurde Company for Jewelry of Saudia Arabia was added to the Gold List on 1 June, 2010. L'azurde is the first refinery in the Middle East to be accredited.

The silver refinery of Yunnan Chihong Zinc & Germanium Company of China was added to the Silver List on 28 June, 2010.

The silver refinery of Yunnan Chihong Zinc & Germanium Company of China was added to the Silver List on 28 June, 2010.

There have been two name changes affecting Good Delivery List refiners recently:

Nippon Mining and Metals has merged with other group companies to form JX Nippon Mining and Metals Company Ltd.

Following the dissolution of the AGR Matthey Joint Venture in Perth, Australia, the Newburn refinery is now wholly owned by the Western Australian Mint and trades under the name of the Perth Mint.

During the past quarter, a number of refiners have registered changes to their bar marks:

Tanaka Kikinzoku Kogyo KK (Silver)
The Perth Mint (Gold and Silver)
Argor Heraeus (Silver)
Royal Canadian Mint (Gold)

COMMITTEES

Management

The Committee met in May and July. As usual, the Committee's work largely consists of reviewing the reports from the Subcommittees and making decisions based on their recommendations. The Committee also reviewed the operation of market making in the London market in relation to the requirements that must be satisfied by Ordinary Members who are applying to be reclassified as Market Makers.

Data commercialisation was again an important topic on the Committee's agenda. Good progress has been made in the project to publish a forward curve for gold on the basis of the daily contributions of the LBMA's eight forward Market Makers, which is to be compiled and distributed with the assistance of the London Metal Exchange.

Noting that some companies within the membership and the Good Delivery List have been very slow to pay their annual subscriptions, the Committee approved a recommendation from the Membership Committee that, in future, a 20% premium will be charged for companies that have not paid within three months of the date of the relevant invoice. The Executive will ensure that the invoices have been sent to the correct address and that two reminders have been sent to the company concerned before applying this surcharge. In addition, companies whose subscriptions are still due after six months will have their membership revoked.

Physical

Apart from monitoring the Executive's processing of a large number of GD applications (the seven that have already been listed this year and another three that are in the pipeline), the Committee has focused on three major topics recently. The first is the introduction of the electronic weighing of gold as an alternative to the use of the traditional beam balance (see the article on page 7). The second, also of relevance to the vaults in London, is the development of a new formal procedure for the recognition of vaults used by the bullion market. Thirdly, a new draft Memorandum of Understanding on the application of VAT in the bullion market has been under development. Once reviewed and agreed with HMRC, it is intended that the Memorandum of Understanding will be circulated to all members, to clarify any areas of doubt about the application of this sometimes complex tax within the bullion market.

Public Affairs

As always at this point in the year, the Committee's work has been dominated by intensive discussions on the speaker programme for the forthcoming conference that will be held in Berlin in late September. The Committee has also been kept informed about the new revamp of the LBMA website, which has a number of new features and a completely redesigned user interface. We would be delighted to receive comments on the new website, including suggestions for content that might be included in the new Members Area.

Finance

The Committee completed its main task for the year in preparing the annual accounts for 2009, which were duly approved by the Management Committee and adopted by the AGM. In reviewing the aged debtors list, the Committee expressed some concern about the number of aged debts (see below for the response from the Membership Committee). Given the expansion of the LBMA's budget in recent years and the increased number of transactions to be processed, the Committee has also introduced a number of monthly bookkeeping checks, which will ensure that the accounts are always up to date.

Membership

As can be seen from the above, the Membership Committee has had a busy quarter. In addition,

it has discussed whether approaches might be made to other types of institutions that might be interested in Membership, such as research companies and central banks. However, the Committee concluded that although applications from such companies would be welcomed, the LBMA would not proactively encourage them to apply.

Reference Materials Project

Both the gold and silver phases of the project are now complete, and the materials have been sent to all those companies that had pre-ordered and paid for them. In addition, sales have been made to companies, including those that are interested in applying for Good Delivery accreditation. Details of the materials (both the technical specifications and the sales prices) can be found on the website.

Annual General Meeting

The LBMA Annual General Meeting was held in the Armourers Hall, in Coleman Street in the City of London, on 23 June. In addition to the formal business of approving the accounts and appointing the auditors, the meeting received reports from the Chairman and the chairs of the four Subcommittees. The following members were elected to the Management Committee:
Philip Aubertin (UBS)
Simon Churchill (Brinks)
Kevin Crisp (Mitsubishi)
David Gornall (Natixis)
Raymond Key (Deutsche Bank)
John Levin (HSBC)
Steven Lowe (Bank of Nova Scotia)
Martyn Whitehead (Barclays)
The new Committee then met and chose Kevin Crisp as Chairman and David Gornall as Vice Chairman. Interestingly, this is the first time in the LBMA's history that both these offices have been held by representatives of Ordinary Members.

Biennial Dinner

The Biennial Dinner this year will be held on the evening of 25 November. The venue will again be the splendid Goldsmiths' Hall. Details of the event (including the price) will be circulated to all Members and Associates nearer the time.

On the afternoon of the same day, the LBMA is organising a seminar that will address a number of topical issues, including some that will be of interest to the many official sector representatives who are expected at the dinner as guests of the Association.

REACH

The LBMA's work on REACH is almost complete, at least for the moment. Pre-registered companies will shortly be contacted by the Brussels-based Precious Metals Consortium about how they can gain access to the necessary Registration Dossier to complete their registration (and importantly, the cost of obtaining it).

Chief Executive Presentations

The Chief Executive has made a number of presentations at industry events in the past quarter, mostly on the Good Delivery List and the role of the London Bullion Market, especially in relation to the burgeoning investment market for gold and silver:
1. SACHS Investment Conference in London
2. Dubai City of Gold Conference
The Ninth Biennial Gold Symposium, Lima
3. The 7th Shanghai Futures Exchange Derivatives Market Forum
4. ETF Securities Conference Call.

He would like to thank all the organisations for their invitations. Copies of his presentations can be found on the website. ■

The London Gold Market Fixing Limited has announced that there will be no afternoon gold fixings on Christmas Eve, Friday 24 December, and New Year's Eve Friday 31 December, 2010.

facing facts

Paul Burton
Managing Director
GFMS World Gold Ltd

Juniors are risky investments, but essential players in the gold industry

Few Alchemist readers will be familiar with what we in the industry call the 'the junior mining sector'.

Individually, 'juniors' do not contribute much, if anything, to annual mine supply and, even collectively, their impact is hardly noticeable in an industry dominated by multimillion ounce producers.

But juniors, which include junior explorers, are vital components of the gold-mining industry and represent a compelling investment class for investors with a high propensity for risk.

Junior explorers are the exploration pioneers in lands where major gold companies may fear to tread. They act as the vanguard for their more conservative and larger contemporaries.

In recent years, it has been the juniors that are collectively spending over 50% of the global exploration budget and that are responsible for making the bulk of discoveries.

They comprise, in most cases, small geology-led outfits with a passion for exploration and boundless energy and enthusiasm. What they often lack, however, is money, and the need to refill the treasury can be a constant headache for management. Exploration companies, you see, don't generate any income, although they are very adept at spending it. They have no gold production; no sales revenue; only a long list of expenses and salaries to pay. Their only asset, apart from a right to explore a certain piece of ground, is the intellectual capital of the team.

Thus, exploration companies can be considered as performing the critical research and development function for the industry.

6D Model of Mining

High Risk

DETECTION	traces of gold in soils or geophysical anomalies on maps.
DISCOVERY	drill results with grades & widths. Some idea of potential.
DEFINITION	Resource, so idea of size. Pre-feas provides costs & revenues to within +/-30%. Initial valuations.
DESIGN	definitive feasibility study. High confidence in all technical input figures. Capital committed.
DEVELOPMENT	construction. Capital being spent.
DEPLETION	ultimate proof. Expect some technical teething problems.

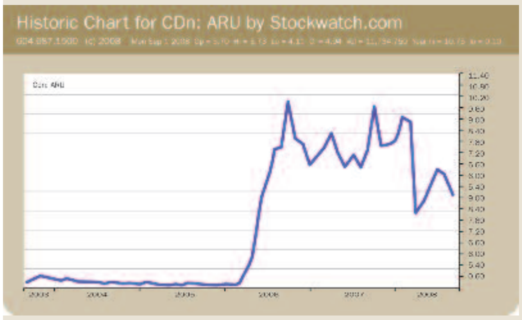
Low Risk

As mentioned before, it is important to stress that exploration companies don't generate income – they consume it – and those investors that supply the necessary funds for the company's activities have no guarantee that they will ever see their money again, let alone get a decent return on their investment. Compounding the problem for would-be investors is the fact that, by definition, the explorers generally confine themselves tothe earliest and highest risk phases of the industry life cycle – the Detection and Discovery stages, as described in the diagram above, which uses World Gold Analyst's 6D notation.

The diagram illustrates the levels of risk involved in the mining cycle as the process moves from Detection through to the Depleting phase.

How juniors can minimise the technical and geological risk associated with gold exploration is by gaining a thorough understanding of the deposit geology and its regional setting through a comprehensive programme of desk and field reconnaissance. Such a programme should involve a phased and systematic evaluation, using all methods available, and appropriate pauses to digest and assess the results of each stage and redirect their efforts, if necessary.

The company may, of course, be forced sometimes to suspend temporarily its activities if it runs out of money and new funds are not immediately forthcoming. Bearing in mind that the company relies on investors buying its shares as the sole source of funds, it must constantly promote its merits and the attractiveness of its projects in a competitive marketplace. This can often lead to unsophisticated investors being duped if they don't carry out sufficient due diligence before they stump up their savings.



Luckily, there are stock exchange rules and regulations that guide companies in appropriate behaviour so that situations as described by Mark Twain below seldom occur these days, but even so, the investor places a great deal of trust in the management of the company if he doesn't possess a considerable knowledge of geology himself.

"I little knew, then, that the custom was to hunt out the richest piece of rock and get it assayed. Very often, that piece… was the only fragment in a ton that had a particle of metal in it – and yet the assay made it pretend to represent the average value of the ton of rubbish it came from!" Samuel Clemens (*Mark Twain* 1872). And management is the key at the early project stage. The investor must ultimately trust that the geologists and directors have investigated the deposit correctly and that their interpretation is sound. The best way to do this is to check the credentials and track record of senior management. These days, through the internet, this is a relatively simple task. The investor should also meet with management and quiz them face-to-face about how investors' money is being spent.

Is it going into the ground or funding a director's lavish lifestyle? Management owning a substantial shareholding is also a positive sign as it generally means that the aims of insiders and outsiders are aligned.

Furthermore, an inexperienced investor should get professional help. Whereas, in the first instance, this may mean talking to World Gold Analyst, if their investing experience has proved to be too stressful, this may mean the professional concerned wears a white coat and has a couch in his office!

Junior explorers are the exploration pioneers in lands where major gold companies may fear to tread. They act as the vanguard for their more conservative and larger contemporaries.

Paul Burton *is Managing Director of GFMS World Gold, a company which undertakes equity research and publishes World Gold Analyst, a leading independent gold mining investment publication. Paul holds an MSc in Mining Engineering and an MBA from the University of the Witwatersrand, South Africa.*
paul.burton@gfmsworldgold.com

The Alchemist is published quarterly by the LBMA.
For further information please contact Amy Berman, LBMA PR and Media Assistant
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

The *Alchemist* is designed by Ion River, produced by Amy Berman

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

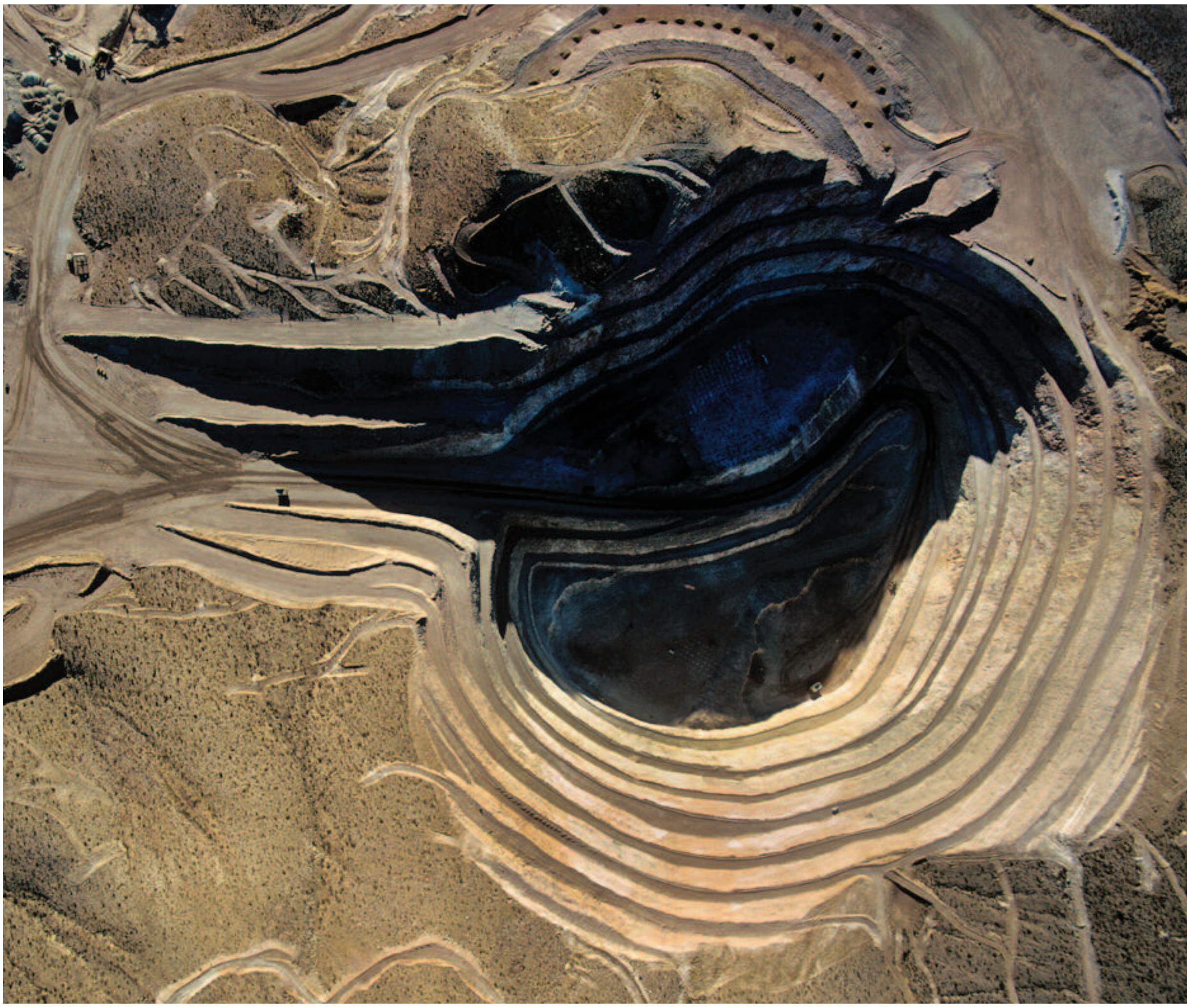
LPPM
GOOD DELIVERY REFEREE

LBMA

Alchemist

The London Bullion Market Association ISSUE 60 September 2010

In this issue



Open Pit Gold Mine – *Castle Mountain Mine, near Searchlight, Nevada.*
Mark Fellows discusses gold mine economics on page three.

All the metals – all the angles – all the time

MITSUI GLOBAL PRECIOUS METALS

Sydney • Hong Kong • Tokyo • London • New York

Sydney
Level 46 Gateway
1 Macquarie Place
Sydney
NSW 2000

Tel: 61 2 9256 9442

Hong Kong
Suite 1306
Two Exchange Square
8 Connaught Place
Central, Hong Kong

Tel: 852 2899 2026

Tokyo
2-1 Ohtemachi
1-Chome
Chiyoda-Ku
Tokyo 100

Tel: 81 3 3258 3407

London
4th Floor
St Martins Court
10 Paternoster Row
Lodon EC4M

Tel: 44 20 7489 6761

New York
200 Park Avenue
New York
NY 10166 0130

Tel: 1 212 878 4122

Gauging the Long-Term Cost of Gold Mine Production

By Mark Fellows, Managing Director, GFMS Mine Economics

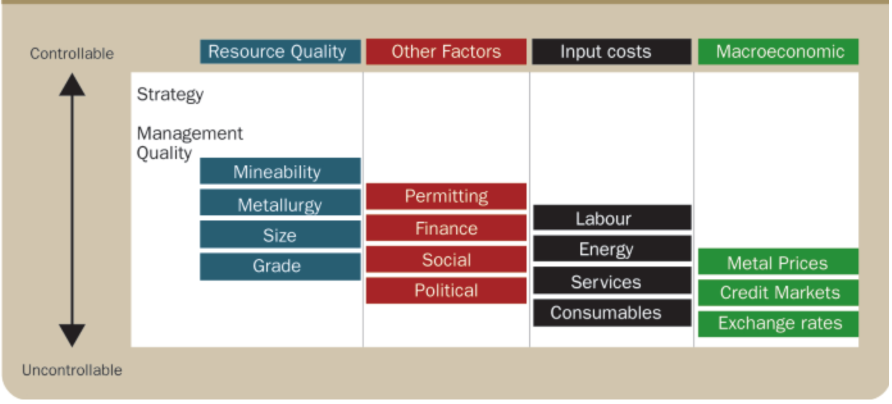
What is the 'true', fully loaded cost of global gold mine production, and what factors decide it?

In this article, we aim to quantify the long-term equilibrium price required to sustain the industry. We also examine the impact of changes in the main production cost drivers: orebody quality, input costs, currency value and metal prices.

Believe it or not, gold mining is not a simple activity. Despite the archetypal image of a basic industry, with grizzled miners toiling away shifting dirt, gold mines are in fact highly complex, dynamic systems. Multiple controllable and non-controllable factors, some of which interact in unpredictable ways, affect output levels and profitability. To add to the complexity, global gold mines are heterogeneous, varying widely in geology, scale, technologies and cost structure.
As a result, considerable care must be taken when analysing, summarising and prognosticating about the industry. Bearing that in mind, this article draws upon the analysis in GFMS's Gold Mine Economics service to reach some conclusions about the long-term economics of the sector.

The Gold Mine Economics service comprises detailed mine-by-mine analysis of reserves/resources, production, operating costs, capital costs and cash flows for more than 300 gold mines and projects, with historical data and forecasts to 2030. By benchmarking detailed technical, operating and financial parameters, we aim to provide the best possible insight into the drivers of the industry's cost structure. Based on a stringent methodology for analysing mine operating costs, analysis is derived from a 'bottom-up' understanding of resource quality, orebody geometry, mining and processing methods, labour costs, productivity, energy usage and consumable input costs.

Figure 1: Drivers of Gold Mine Economics



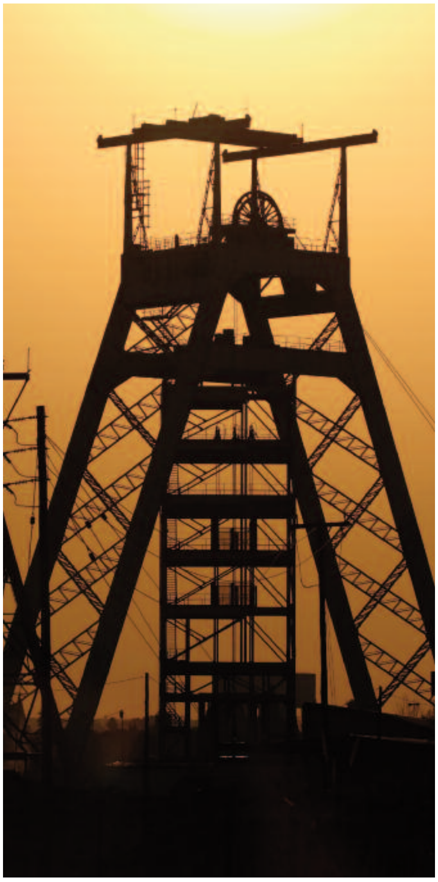
The Drivers of Gold Mine Profitability

Figure 1 shows the main factors that interact to dictate the profitability of a gold mining operation. At first glance, the diagram would seem to imply that few of the drivers can be significantly influenced by mine management, but this is not really the full story, as the relative importance of the factors shown varies enormously.

Strategy is the overriding factor, dictating the scale of operation, mining and processing techniques used, and mine lifespan. This is in turn dependent on resource quality, which is to some extent uncontrollable, but a key point in this regard is that resource size and grade can be influenced by strategy. How much is management willing and able to invest in exploration ahead of production? What cut-off grades do they select?

Cut-off grade selection is arguably the main factor deciding the economics of a mine, as it dictates the tonnage and grade of ore to be mined, and in turn the scale, lifespan and profitability of the operation. Cut-off grade is defined as the lowest grade of ore that it is economically feasible to extract, and it in turn depends on forward-looking metal prices, operating parameters and cost assumptions made by mine management.

Cut-off grade provides the mechanism by which miners respond to changing metal prices. If prices rise, they can extend mine life by reducing cut-off grade, exploiting previously uneconomic mineralisation. This has the effect of extending mine life, while lowering gold output and causing costs to rise. Some mines are inherently more flexible than others, with larger, higher-grade, 'massive', near-surface orebodies having significant advantages in this regard.



As gold prices have risen roughly five-fold since 1999, average gold mine ore grades have fallen by nearly 30%, in large part due to this cut-off grade response. This also partly explains why gold mine production has not increased significantly, as producers have focused instead on extending their mine lives. This has been exacerbated by a 'discovery drought', with very few world-class gold orebodies being discovered in recent years, despite record exploration expenditure. Over the same period, all-in production costs have more than doubled, partly due to severe input cost inflation, but also due to lower cut-off grades.

Figure 2 shows the sensitivity of gold mine production costs to the main drivers, on a global average basis. For instance, a 10% fall in global average ore grade gives rise to a $50/oz rise in average production costs.

Besides grades and process recoveries, production costs have the highest sensitivity to changes in exchange rates, with a 10% strengthening of the dollar giving rise to a $47/oz fall in average production costs on a global average basis. Exchange rates are usually the largest single determinant of year-on-year global average production cost changes.

With regard to input costs, labour is by far the most sensitive cost component, by virtue of its large proportion of a typical operating cost base.

Production Cost Metrics: What's Useful?

GFMS contends that the gold mining industry's historic preference for reporting and comparing cash cost parameters, rather than adopting a profitability measure that is more reflective of the true, 'fully loaded' costs of production, has ultimately proved misleading and counterproductive.

The fixation on cash costs has fostered a general perception that global gold mine margins are higher than is actually the case.

All-in cost is a proprietary GFMS Mine Economics $/oz cost metric, designed to reflect the full marginal cost of gold mining. In addition to mine site cash expenses (mining, ore processing, on-site general and administrative costs), refining charges, royalties and production taxes, by-product credits, depreciation, amortisation and reclamation cost, it includes ongoing capital expenditure, indirect costs and overheads. The latter includes corporate administrative costs, interest charges, mine site exploration and any extraordinary charges, such as retrenchment costs, carrying value write-downs, etc. Ongoing ('stay-in-business') capital expenditure is defined as capital expenditure necessary to sustain production rates at a mine. The global average all-in cost for 2009 was $717/oz, up $27/oz on 2008.

The fixation on cash costs has fostered a general perception that global gold mine margins are higher than is actually the case.

Although cash cost measures such as total cash cost are a useful gauge of competitiveness at the mine-by-mine level, they do not account for a substantial portion of the cost required to develop and sustain gold mining operations, so are arguably less useful as a measure of 'real' industry margins, or the long-term gold price required to incentivise gold mine production growth.

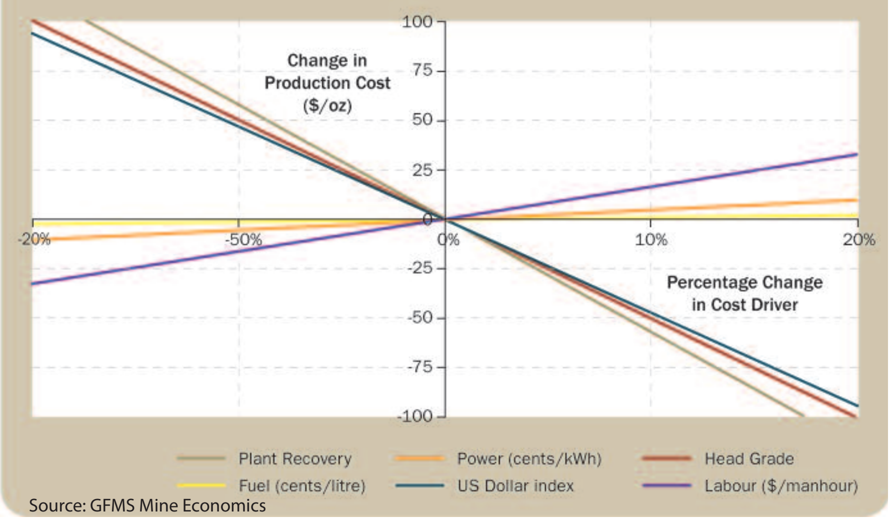
The historic relationship between all-in costs and gold price paints a clear picture. During the 1997 to 2001 bear market, average all-in cost margins were strongly negative, with costs tracking the gold price downwards in an effort to regain profitability, or at least remain in production. As the gold price recovered from 2002 onwards, positive all-in cost margins were quickly re-established and maintained. However, until 2009, miners were unable to deliver sustained production growth, given that they were reducing cut-off grades to take advantage of higher prices, extending mine life at the expense of higher costs.

Implications for Long-Term Prices: The Future

Although all-in cost is undoubtedly a superior measure of 'full' industry production costs, we admit that it does not account for certain cost components that also have a bearing on the true long-term break-even cost of gold mine production.

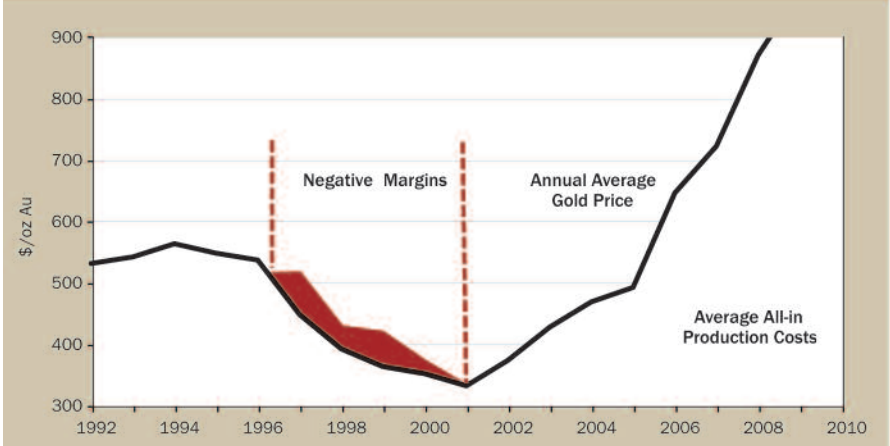
All-in costs include sustained/ongoing capital expenditure and depreciation of sunk capital costs, but not current-year project development and expansion capital costs. In 2009, the gold mining industry invested an average of $173/oz of global production in project development and mine expansion.

Figure 2: Sensitivity of Production Costs to Key Drivers



Source: GFMS Mine Economics

Figure 3: All-in Cost versus Gold Price (rebased to 2009 $ terms)



Source: GFMS Mine Economics

Heraeus

Precious Metals Trading. Refining. Investment. Industrial Products. An entire world in just one word: Heraeus.

At one time precious metals were the currency of the world. Even today they are still treated and traded as financial products; globally, unrestricted by place and time. For just as long, precious metals have also played a vital role in a manifold of industrial applications.

Heraeus has played a vibrant role in both areas for almost 160 years, and during this time our company has earned a reputation as a leading expert and competent partner for the refining, trading and manufacturing of precious metals.

Strongly supported by our four trading units in Hanau, Hong Kong, Shanghai and New York, we assist our customers in professionally managing the risks associated with the physical acquisition, price fluctuations or financing of precious metals.

In addition, our company also offers a large number of products to investors: A wide range of gold, silver, platinum and palladium investment bars, from a filigree 1 gram gold bar right up to a massive 5 kg silver ingot, can satisfy the wishes of any physical investor.

Hanau
tradinghu@heraeus.com
Phone +49 6181.35-2750

Hong Kong
tradinghk@heraeus.com
Phone +852 2773 1733

Shanghai
tradingsh@heraeus.com
Phone +86 21 33575675

New York
tradingny@heraeus.com
Phone +1 212 7522180

www.heraeus-trading.com

Likewise, all-in costs exclude greenfield (i.e. early-stage project) exploration expenditure, which is estimated to equate to $35-$60/oz of annual production. Taking these additional costs into account, GFMS Mine Economics contends that the 'true' long-term cost of gold mine production stood somewhere between $925 and $950/oz in 2009, a sobering thought when one remembers that this figure does not allow for any return to shareholders.

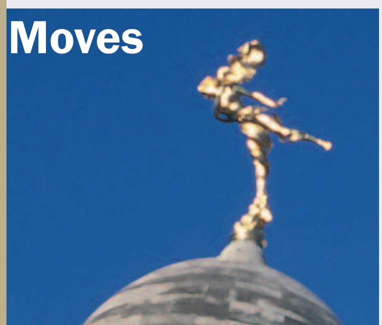
Long-term equilibrium production costs will remain highly sensitive to the key cost drivers, some of which are partially within managements' area of influence or control, but most of which are uncontrollable. Many of these cost drivers will doubtless continue to creep upwards in future. The largest single cost component, labour costs, continue to rise; for instance, in local currency terms, South African labour costs have increased by 10% per annum on average since 1999, with the two-year agreement signed by the main producers in 2009 committing to ongoing 7.5-10.5% wage increases. There is undoubtedly a tendency, now established, toward increasing unit labour costs in developing countries, as globalised mining companies export better operating practices, along with higher productivity levels and better pay.

Similarly, other input costs will continue to rise in real terms, as energy and consumable costs are pushed upward by increased competition for resources, and greater regulatory and tax burdens, such as carbon taxes.

This said, as highly complex dynamic systems, well-managed gold mines will continue to adapt, utilising whatever flexibility is provided by their orebodies. Despite record exploration expenditure, the extent to which this will be bolstered by the discovery of new world-class deposits over the coming years remains to be seen. ■

Mark Fellows *is Managing Director of GFMS Mine Economics.*
Mark began his 23-year career in the mining industry as an exploration geologist with Anglo American/De Beers. He went on to work for several junior explorers, prospecting for diamonds, gold, base metals and industrial minerals in Africa. In 1992, he joined Brook Hunt, a globally renowned mineral economics consultancy, serving as a director, responsible for BH's Gold Mine Costs study and numerous bespoke consulting assignments from 1999 to 2005.
GFMS Mine Economics was launched in early 2009, with aim of delivering high-quality, detailed insight into the economics of mine production, exploration and development, across a broad range of metals and minerals.
mark.fellows@gfms.co.uk

Market Moves



Toronto Dominion Bank
Tim Gardiner heads the Global Precious Metals team at TD Securities. He's joined by **Steve Scacalossi, David Swinburne** and **Matthew Hopkins** in Toronto; **Bob Davis, Peter Airlie** and **Alex Pop** in London; and **Ruark Lineker** and **Joe Bowden** in Singapore.

Christian Pfeifer to **UBS**
Christian has joined UBS to trade PM Spot. He will be based in London. He previously worked at Mitsui London and prior to that Heraeus NY.

Lucien Weisen to **Commerzbank**
Lucien started his banking career at UBS Luxembourg as an FX trader in 1984, covering the forward books as well as precious metals for wealth management. After 14 years at UBS, he moved to Dresdner Bank Luxembourg to cover the same role for the next 12 years. In April 2010 he joined Commerzbank's precious metals desk in Luxembourg, where he covers Spot and Forwards.

David Corcoran to **Société Générale**
David started at SG in late August. He previously worked at Dresdner Bank, Credit Suisse, JP Morgan and Johnson Matthey Bankers.

John Reid to **Metalor Technologies SA**
John has joined Metalor as Group Treasury. He previously worked as Head of Global Markets for the Rand Refinery in South Africa and prior to that worked for Barclays Bank, ABN Amro and Nedbank amongst others.

Jamie Grace to **Standard Chartered**
Jamie has joined Standard Chartered as Head of Metals Options Trading. He is based in London and with the Commodities Derivatives Team. Jamie has 16 years' experience trading financial derivatives and previously worked at Calyon as Head of Commodity Option trading, and at JPMorgan for 12 years, where he held the position of Global Head of Oil Option Trading.

Your *global partner* for precious metals

Active in the physical and non-physical markets for almost a century, our award winning dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

- Gold, silver, platinum and palladium
- 24h global service from hubs in Switzerland, the US, Singapore and the UK
- Physical precious metals custody in our Swiss vaults
- Coins – trading, handling and storage
- Structured products and tailor-made hedging solutions
- Full range of OTC derivatives
- Gold ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335
Stamford: +1-203-719 1178
Singapore:* +65-6495 8474
London:* +44-207-567 6758

*non physical only

www.ubs.com

UBS

No. 1 Dealer in Precious Metals – Gold Forwards, Options and Spot, *Risk* 2010. © UBS 2010. All rights reserved. 04441

Silver Investment in the United States and India

By Michael DiRienzo, Executive Director, The Silver Institute

While India and the United States stand out as two of the most important drivers for silver investment demand, how they do it is a study in contrasts. The roots of their silver investment are well established and the past several years of global economic turmoil have only served to reaffirm these two nations' affinity with the white metal.

Indian silver demand, like gold, is largely fuelled by rural investors, mainly farmers who seek to convert some of their income into savings in the form of bangles, other jewellery and decorative ornaments. Shifts in demographics are slowly changing investment patterns in India, as increasing numbers move to urban areas. The June-to-September monsoon season remains an important factor in silver demand and bountiful rains are often the harbinger of upticks in investment.

The United States has a rich history of silver mining and investment. American investors have long had a predilection for physical silver, favouring coins and bars to stash investment cash. On the retail side, many smaller investors like the portability of coins and smaller bars, and the discretion that comes with such investments. More sophisticated investors have sought to leverage silver investing with mining shares and mutual funds and more recently with exchange-traded funds (ETFs).

When examining current silver investment in the United States and India, it is important to look at the global picture. Over the course of the last three years, world investment has more than tripled, rising from 61.7 Moz (millions of ounces) in 2007 to 215.6 Moz in 2009.[1] From 2008 to 2009, global silver investment leapt by a staggering 184%.

Perhaps one of the most important developments in the silver investment market in the past 50 years was the advent of precious metals ETFs in 2004. These investment products, which trade like stocks, have served to 'democratise' global silver investing by making it convenient for retail investors who might otherwise have eschewed silver investing because of the difficulties of storage, insurance and assaying. That convenience, coupled with a global financial crisis and greater shifts toward portfolio diversification, has pushed the silver price higher in recent years. Examining ETFs more closely, total holdings in 2009 rose by 132.5 Moz, ending the year at 397.8 Moz. The growth was the product of increased holdings of the three funds that were active at the beginning of 2009, and the launch of new silver ETFs in Australia and United States last year. On the whole, between 2005 and year-end 2009, the silver price increased a staggering 141%.

Turning to global silver coin and medal fabrication, this segment of investment demand grew by a hearty 21% to a new record of 78.7 Moz in 2009, driven by a spike in retail demand. This increase was led primarily by the United States and Western Europe. Looking at the table below, silver coin and medal fabrication increased nearly 60% between 2000 and 2009.

Silver Investment in the United States

In the United States, physical investment in silver is dominated by the purchase of one-ounce bullion coins and 100-ounce bars. The bars are almost entirely produced locally. However, the surge in demand during 2008 saw a number of other institutions start to produce their own bars, including private mints and industrial manufacturers.

The coin market is dominated by the US Mint's Eagle one-ounce bullion coin. A number of overseas bullion coins have also proved popular in the United States, particularly the Canadian Maple Leaf, although for example the Austrian Vienna Philharmonic and Australian Kookaburra, Lunar and Koala coins have all achieved some success.

The silver Eagle, first introduced in 1986, saw sales remain broadly stable during much of the 2000s, averaging 9.4 Moz during 2000-

Silver ETFs Holdings

	end – 2008	end – 2009
iShares Silver Trust	218.4	305.9
ZKB Silver ETF	32.7	59.0
ETF Securities	14.2	23.4
ETF Securities Australia	–	0.4
ETF Securities NYSE	–	9.2
Total	**265.3**	**397.8**

Source: World Silver Survey 2010 - Respective issuers

2007. However, since 2008, minting has increased substantially, with total coin output in both 2008 and 2009 achieving successive records of 19.6 Moz and 28.8 Moz. Furthermore, 2010 is on course to post a new record high, with combined January-to-July sales up 27% year-on-year. Demand for these coins is so strong that the US Mint has at times struggled to keep pace. At the heart of the problem is the difficulty in sourcing sufficient planchets (or blanks).

The growth in silver investment demand during 2008 pre-dated the collapse of Lehman Brothers, although the ensuing credit crisis led to heightened retail demand. This surge also led to heightened retail purchases of 100-ounce bars. Again, demand was so marked that shortages emerged in the bar market, which encouraged a number of new entrants to begin their own production.

In 2010, although US bar demand has fallen noticeably, US coin minting has continued to grow, driven by firm demand at home and overseas, principally in Western Europe, encouraged by Europe's sovereign debt crisis.

Silver Investment in India

Today in India, investment in silver continues to take place in what might be termed 'traditional forms', namely heavy, high-karat, low-labour, plain silver jewellery (silverware, as a form of investment, has been adversely affected in recent years due to under-karating), as well as through the hoarding of bars. In contrast, coins are a small fraction of the overall Indian investment market.

Silver jewellery forms the bulk of investment in rural areas, while urban centres show a preference for lower mark-up bars. That said, some rural areas have also developed an interest in bars, particularly those that are well connected to cities. Overall, retail jewellery consumption grew by 6% in 2009, again driven primarily by an improvement in demand from rural areas, which are the backbone of the heavy jewellery market in weight terms. The modern jewellery segment saw considerable growth in 2009, both locally and for exports. Among other things, higher gold prices spurred substitution into silver. Ongoing urbanisation, concerns over elevated prices and issues related to under-karating continue to hold off a significant swing to the upside in this segment.

Notwithstanding the preferred form of investment, there still exists an active two-way market for each segment. In this regard, while jewellery would typically be sold back once in a given year (mainly during May and June to fund the sowing of monsoon crops), the trading in bars might be more frequent, being more dependent on changing investor price expectations.

In terms of recent trends in the Indian market, the record level of investment in 2008 was due to a combination of strong demand from urban dwellers and from silverware/jewellery fabricators. Both of these groups deemed prevailing silver prices to be undervalued, with expectations therefore of strong future gains. Conversely, the rush to disinvest in 2009 was arguably of little surprise, given that rupee silver prices had broadly fulfilled investors' expectations, resulting in both actual dishoarding and the manufacture of bars into jewellery and silverware, which would also be classified as dishoarding. This pattern was spread throughout the year, despite the fact

Silver Fabrication: Coins and Medals (including the use of scrap – million ounces)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
United States	13.4	12.3	15.3	14.5	15.5	16.6	17.6	16.0	25.1	33.9
Canada	1.0	0.9	1.0	0.3	1.3	1.6	2.9	4.3	9.0	10.8
Austria	0.2	0.3	0.4	0.4	0.5	0.6	0.5	0.5	8.3	9.5
Germany	8.8	8.1	6.0	9.7	9.7	9.7	8.7	6.3	7.2	7.5
Australia	1.0	0.8	0.6	1.3	1.3	1.0	1.4	3.5	5.9	6.5
China	1.2	1.5	2.1	2.3	2.3	1.8	1.6	2.6	2.8	3.0
Mexico	0.7	1.1	1.1	1.5	2.7	2.6	1.9	1.6	1.4	1.7
Spain	1.8	1.8	1.5	1.1	2.2	1.7	1.5	1.2	1.1	1.0
Other Countries	4.1	3.7	3.5	4.5	6.8	4.3	3.7	3.7	4.5	4.8
World Total	32.1	30.5	31.6	35.7	42.4	40.0	39.8	39.7	65.2	78.7

Source: World Silver Survey 2010

Nominal Silver Prices in Indian Rupee 2000-2009

Source: World Silver Survey

In terms of recent trends in the Indian market, the record level of investment in 2008 was due to a combination of strong demand from urban dwellers and from silverware/jewellery fabricators.

that until July the average year-on-year silver price was some 7% lower. According to GFMS, this disinvestment was not price-related and essentially was the consequence of the conversion of bars, acquired by the trade the year before, into jewellery and silverware. Toward the latter part of the year, disinvestment took a more conventional form – investors taking profits on escalating prices.

This year, it appears as though India may see a modest return to net hoarding. With local prices hovering around Rs29,000/kg at the time of writing, many investors have been discouraged from entering the silver market. It therefore appears that prices below Rs25,000/kg may be required to stimulate retail interest in the Indian market. However, as gold continues to push higher, the Indian investor's desire may increase, especially if bountiful monsoon rains bring better harvests. ■

[1] World Silver Survey 2010, which is produced by GFMS Ltd on behalf of the Silver Institute

Michael DiRienzo *serves as the Executive Director of the Silver Institute, an international association whose membership comprises major participants in the silver industry. In that capacity, Michael manages the Institute's overall daily activities, budget development and management, implementing the annual plan, and public affairs activities.*

From 1999-2002, Michael served as Vice President of the Gold Institute, managing that association's government and public relations activities. Prior to 1999, Michael served as a government affairs representative for Janus/Merritt Strategies, a political and strategic management firm. Michael also represented a member company of the Toyota Group as Director of Government Relations. Formerly, Michael served as Legislative Assistant and Press Secretary to the Chairman of the House Rules Committee, U.S. Congressman David Dreier (R-CA). During his tenure with the Chairman, Michael worked on Banking Committee and Small Business Committee issues.

The London Gold Market Fixing Limited has announced that there will be no afternoon gold Fixings on Christmas Eve, Friday 24th December 2010, nor New Year's Eve, Friday 31st December 2010.

Gold...

A fully integrated precious metal management company, Rand Refinery is the world's largest single-site refining and smelting complex, with a reputation for quality, reliability and integrity built up over eight decades.

RAND REFINERY LTD · SOUTH AFRICA ·

Based in Germiston, in Gauteng, South Africa we are conveniently placed for access to Johannesburg's OR Tambo International Airport.

We are committed to the highest standards in all aspects of our business:
- LBMA accreditation
- LBMA referee status
- Dubai Metals and Commodities Centre accreditation
- OHSAS18001 (health and safety)
- ISO14001 (environmental)
- ISO9001 (quality)

We offer:
- The latest technology in both refining and smelting
- a knowledgeable team, steeped in the business
- analytical services
- stringent security
- a comprehensive vault, clearing and air forwarding service
- fabrication of a range of value-added products

Tel +27 (0) 11 418-9000 Fax +27 (0) 11 418-9231 gold@gold.co.za www.randrefinery.com

Broking: Computerwelt

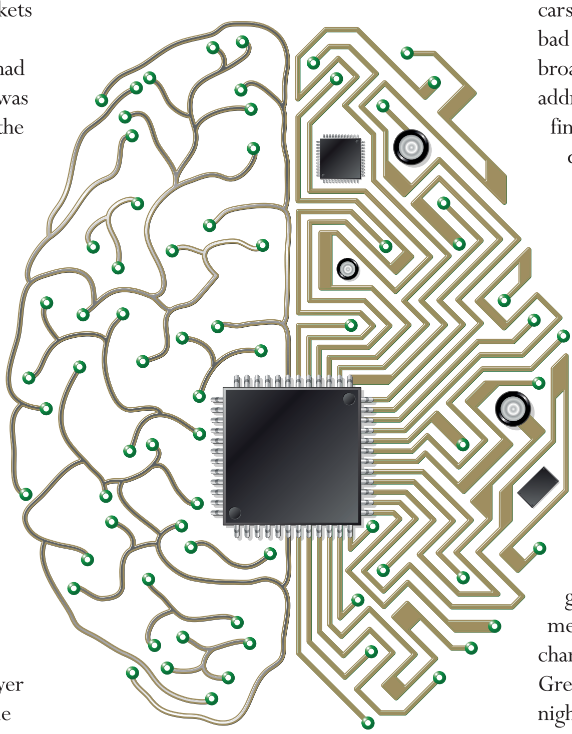
By Darryl Hooker, Global New/Emerging Market Manager, ICAP plc

It was a balmy August morning in 1980 when I turned the corner into New Broad Street and stared at the stone façade of Friars House, the home of Woellwarth & Co, a brokerage house, which was part of the Mercantile House Group.

I had started my career in the financial markets and first held what could be considered a Dickensian position – trainee scribe. Yes, I had arrived in the City! Now, this meant that I was the chap who watched the guy who wrote the deal tickets for the broker who did the deals. However, my biggest challenge during the first few weeks was not only to remember the lunch orders, but also to stay awake. I sat facing a dealing board covered in almost 200 rectangular plastic plugs inscribed with the names of banks. Now to further the hypnotic effect of staring at these all day, the plugs went from grey to blinking white to red, rather like a Christmas tree, as the banks and brokers talked to each other all day, transacting short date sterling swaps. The noise only came from the brokers themselves as they called out their orders and executed their customers' trades.

The role of the broker is a remarkably simple one – all you have to do is find a buyer and a seller of the same product, at the same price, in the same amount, at exactly the same time. The broker is not a principal in the trade and works purely on behalf of his customers' interests. So why should these brokers be so highly regarded – surely it wasn't a difficult job? Of course, you then have to consider other factors – the broker is typically working for a number of clients at once with varying interests, he also has to be aware of what all the other brokers are doing on the desk and in what order their interests are to be executed (if at the same price), and then of course, there may be breaking news. As activity increases, so too does the noise, adrenaline levels rise and fall, as do egos, and the ability to master the turmoil becomes of paramount importance. A good broker is possibly a bank dealer's most potent tool if they can communicate well together.

After three months, I was given a chance to be a 'link man', which meant I spoke to other brokers in other centres to see if we could effectively put our orders together. I spoke to Dublin, Brussels and Paris – but I was still one step removed from talking to my own set of banks. Eventually, I was let loose on an exotics desk, where I had free reign over spot, short and forwards in a slew of Far Eastern currencies. Of course, I had loftier ambitions, so a year later, I threw my toys out of the pram and demanded to work on a bigger desk or overseas.



In those days, people listened and reacted quickly, it was the nature of the markets we were being blooded on, and so it was a week later that I started on the spot USD/DEM (Deutschmark) at Marshalls London – the number one spot desk in London, and indeed the world.

Spot FX (or spot anything for that matter) was renowned for two things – speed and simplicity. It wasn't rocket science, but you had to have great mental agility to make sense out of apparent mayhem. Due to the speed and frequency of trading, each bank required a 'squawk box' so that it could be heard, and this also meant a good broker could comfortably sit with 12 or 16 boxes and conduct business. The volume of noise however was immense, as this was open outcry in every sense.

This to me was technically superior to any other trading environment I had seen – voice boxes everywhere, tap on/tap off mute features, hand signals, acronyms, banter and abuse, all writhing around me and threatening to pull me under! Everyday, I was totally exhausted, and when offered the chance six months later to go and work overseas, I had no hesitation in accepting – but that's another story.

I remember around this time that the English daily tabloids could not get enough of the trading markets, young guns with their fast cars, high energy, high jinks, beautiful girls and bad habits. However, I believe it was one of the broadsheets that wrote a very serious article addressing the uptake of technology in the financial markets, and finally asked the question of a chief dealer at a large and reputable American bank in London: "Would technology one day replace his brokers?" His answer was loaded with the champagne-bubble bravado of the eighties: "Never – because the machine can't buy me a beer!" But this article has stayed in my mind ever since, and all these years later, it could be argued that the chief dealer was both right and wrong.

In 1982, I saw my first Reuters screen – black background and green characters. A Swiss colleague had joined us in London on the proviso that he was given his own Reuters screen. I was mesmerised by the way he could type in a four character code and tell me the weather in Grenoble, or the football scores from Spain last night or what the gold prices were across a group of contributors – it was love at first sight!

The developments from the 'squawk boxes' and 'bat phones' (an open link to several broking offices around the world) soon accelerated as I recall seeing the first microphones giving multi-quotation to 16 customers at once, and this was accompanied (on busier desks) by light systems to indicate bids and offers at the top of the book. The idea behind all this was of course to increase efficiency, speed up the execution, move on to the next trade and ultimately do as much business as 'humanly' possible. But therein lay the fate of some heavily commoditised products, be it XAU/USD or EUR/USD, as by 1990, we had maxed out how much was

'humanly' possible to transact. The only way it could have got bigger was for the trade sizes to have got bigger, which would have meant banks taking on much larger positions and greater risk. But surely this bubble would never burst?

In the early nineties, Reuters developed a 'matching' system that would automatically match buyers and sellers, according to pre-screened credit and price, who remained anonymous until a 'match' took place, whereupon both parties' names were disclosed to each other. It was wonderfully efficient, it was quiet, it didn't miss prices (the trader did!), it offered immediate name give-up and never changed the details on a trade – and as if that wasn't enough, brokerage rates were savagely cut too.

A turning point for me was in 1997, as a broker on a desk in New York. I casually asked a trader in Toronto if she could show me a price, and immediately she said she would "check the toy". That was the day that I knew a few digits on a computer screen offered more reliability and comfort to the trader than I did.

So how could Reuters Matching possibly be equalled or indeed improved upon – it just didn't seem likely and, for a while, it did enjoy a monopoly in this unique space. As we have seen over many decades, one's customers often become one's competitors, and so it was that, in 1993, a group of a dozen of the world's largest banks formed EBS. The mandate was simple: to create a tool as good as or better than Reuters Matching and reduce the costs to the banks – workstation charges and brokerage – even further.

Within a few years, EBS had in the eyes of its board member banks done precisely this, and it was in 2000 that EBS became the first electronic platform to offer quotations in XAU/USD and XAG/USD too. This was a massive step in a new direction for a platform that had made its name in spot FX. Again, brokerage levels were slashed and, literally overnight, the voice brokers found that these two precious metal spot markets had found a new venue for execution. This story was duplicated a few years later when EBS (now owned by ICAP) launched spot platinum and palladium too.

Electronic broking has been embraced with varying degrees of success by many others. CME could tell a similar story of the transition from the pit to on-screen trading. I remember being quizzed by a colleague as to why CME electronic volumes in precious metals had suddenly and dramatically risen by 90% (a lead story from a respected media source). Scrolling through the article and down to the reported figures, I also saw that the pit volumes were down by about 90% too (it was the time of transition).

e-Broking (as we refer to it now) is still a tremendously vibrant business as one innovation relentlessly follows another. The buzzwords these days are 'latency', 'efficiency' and 'liquidity', and we use acronyms like API, HFT and MQL. The language may have changed, but the sentiment hasn't – make it simpler, make it quicker, make it cheaper and make it more liquid.

I used to brag to my friends back in my hometown pub about how many millions I had transacted between my customers, and how I did all these trades in a matter of a few seconds and could keep track of the chaos. Now I am an 'old hand' saying very little and maybe sometimes pining for the old days. The seconds have become milliseconds (I remember an IT chap correcting my Freudian slip one day when he said: "You mean 300 milliseconds not 30 – it's not possible for a round trip deal time!" But he's wrong now): volumes are now counted in billions, not millions; and STP systems and arbitrators keep track of trades and actions (keystrokes) beyond any manual capability.

Voice and electronic broking are still working side by side in an uneasy alliance, but both offer unique opportunities to customers. The more negotiable a product, the more it lends itself to voice broking; the more vanilla/commoditised it is, the more it lends itself towards electronic broking.

This month marks my 30th anniversary in the financial markets, with similar periods of time spent both voice and electronic broking. I am taunted by some of my old broker friends that I have defected to the "dark side", but to be honest, these are all shades of grey. There is no dark side, both types of broking offer unique services and they finesse the work they are given. I like to think that being a good broker (electronic or voice) is akin to being a good referee – if you don't notice him, he's doing a good job of running the game.

So finally, was the American banker in the early eighties right or wrong when he said that the voice broker cannot be replaced "because the machine can't buy me a beer"? I hope we can discuss it over a pint at the LBMA conference in Berlin – and that will be another story! ■

Darryl Hooker *joined ICAP (then EBS Dealing Resources) in 2000. Previously, having worked for an underwriter at Lloyds of London, Darryl moved onto Foreign Exchange broking with MW Marshall Inc, where he worked in 8 countries on 5 continents. Darryl was promoted to Managing Director of the New Zealand office and was the youngest appointed Managing Director globally.*

Having worked for MW Marshall for 17 years, Darryl moved onto Reuters America, in the position of Senior Business Development Executive, where he oversaw all Spot trading in the United States.

The total metals marketplace.

Trade Metals Products:

- Most extensive and liquid metals futures market in the world, including benchmark COMEX gold and silver contracts
- More than 100 years of proven safety and security with CME Clearing
- Access around the world on CME Globex – the most reliable electronic trading platform
- Mitigation of credit risk by clearing OTC transactions through CME ClearPort
- Availability of both physically delivered and financially settled futures contracts

In today's metals market, more opportunities are available than ever before. CME Group's broad product suite offers the financial safeguards of clearing, plus flexible trading solutions. Together, our precious, base and ferrous products comprise the world's most liquid metals futures market. And now that COMEX and NYMEX are part of CME Group, the world's leading metals marketplace is gaining new strength. Learn more at **www.cmegroup.com/metals**.

CME Group

CME Group is a trademark of CME Group Inc. The Globe logo, CME, Chicago Mercantile Exchange and Globex are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange Inc. COMEX is a trademark of Commodity Exchange Inc. These contracts are listed with, and subject to, the rules and regulations of NYMEX and COMEX. Copyright © 2010 CME Group. All rights reserved.

LBMA Edelmetalle Conference 2010 Preview

By Edel Tully, Chair, LBMA Public Affairs Committee

It is LBMA Conference time once again, for this delegate just a short hop away, in Berlin. The storied Hotel Adlon is our venue, and I'm sure we shall add to its legends.

The LBMA's choice of Germany makes perfect sense; Germany is after all the second largest official sector holder of gold.

Through companies such as Heraeus Metallhandelsgesellschaft mbh and Degussa AG, Germany has a multi-century relationship with all precious metals. Its affiliation with physical gold was quite obvious this summer as sovereign risk fears heightened in May and June, pushing gold to record highs and fuelling a surge in small bars and coin demand – with Germany one of the largest consumers. Let's not forget Germany's auto industry, which is a significant consumer of platinum group metals.

Demand for this Conference has been exceptionally strong and we're delighted that we have a full house of 450 delegates, making this our largest ever. Due to the unprecedented demand, we closed registration at the end of August, and disappointed delegates have been added to a waiting list. Clearly, based on this Conference, interest in precious metals has never been higher!

The past year has served up volatile price action for all the precious metals, but interest in gold and silver remains steadfast, while platinum and palladium have experienced some dramatic changes in investor appetite. But this will not be a backward-looking Conference. No other platform offers the opportunity to explore the multi-layered precious metals markets with experienced industry professionals and select external experts. It also offers the best opportunity to network and debate – heated or otherwise – the issues most pressing to our markets and industry going forward.

Further networking opportunities can be found at the cocktail party on Monday 27th, kindly sponsored by the Fachvereinigung Edelmetalle, followed by the Conference dinner at Charlottenburg Palace. And of course, at the lunches and session breaks.

The International Platinum Group Metals Association is the kind sponsor of the Welcome Reception, beginning this year's event. In the opening session, we will be fortunate to hear William White, Chairman of the OECD, and George Magnus, Senior Economic Adviser at UBS, lay the foundations of the economic and financial backdrop to this year's discussion. We are, as ever, grateful to all speakers and chairmen for giving their time and expertise. This year, we attempt to look at the two sides of the gold argument – has the gold market entered a new paradigm, or is gold another boom to bust story? This will permeate the Conference sessions, including investment, the traditional physical market and the official sector – all of which have experienced significant changes in recent years. The potential impact of regulation receives attention, and not forgetting that this is a precious metals Conference, we devote a full session to the world of auto catalysts, Southern Africa and PGM investment.

The core argument of the Conference will be dissected further in the presidential style debate by industry experts specialising in different areas of the market. But we don't just stop there; this platform will venture beyond the current metals story, so have your questions ready for the panel. This year, we have again installed Steve Branton-Speak of Goldman Sachs to chair what has proven to be one of the most popular sessions. To wrap it all up, John Reade, of Paulson Europe, will summarise the highlights from each session.

Finally, as Chair of the Public Affairs Committee, which has the challenging task of organising the annual Conference, I must thank my committee members who work alongside the LBMA Executive to bring you the best precious metals Conference each year. After all, it is the Conference, by the industry, for the industry. ■

Dr Edel Tully *is responsible for precious metals strategy at UBS Investment Bank. Edel has been a member of the Public Affairs Committee since 2008 and became its Chairperson in June 2009. Prior to joining UBS earlier this year, Edel was head of precious metals research at Mitsui and Co. Precious Metals Inc. She holds a PhD in gold calendar seasonality dynamics from University of Dublin, Trinity College.*

***London Precious Metals Clearing Limited** has announced that the cut-off time for its Members accepting client instructions for the transfer of gold and silver on Christmas Eve, Friday 24th December 2010, and New Year's Eve, Friday 31st December 2010, will be 2-00 pm London time*

LCH.CLEARNET

LONDON METAL EXCHANGE

Clearing for the
London Bullion market

Optimise your business

Risk mitigation

Operational enhancements

Capital efficiencies

www.lchclearnet.com/commodities/gold

www.lme.com

London Good Delivery History

The Making of a Masterpiece

By Alice Toulmin, LBMA

When the proposal to publish a history of the Gold Good Delivery List was put to the LBMA Physical Committee in May, 2010, the Committee agreed that this would be a valuable reference guide, not only to the history of the London gold market but also to the LBMA's Good Delivery procedures and specifications.

Based on Tim Green's many years of gathering information on the gold market and more recent painstaking research, the resulting document is certainly that. However, when the LBMA Chief Executive, Stewart Murray, had the idea of displaying as many GDL bars as possible on the cover of the publication, he unknowingly initiated the creation of a unique work of art. Stewart admits that his idea was only partly original. He recalled the beautiful cover of "The Gold Companion", issued by MKS and PAMP in 1991 and showing a diagonal array of their kilobars topped by a specially engraved bar bearing the title of the publication.

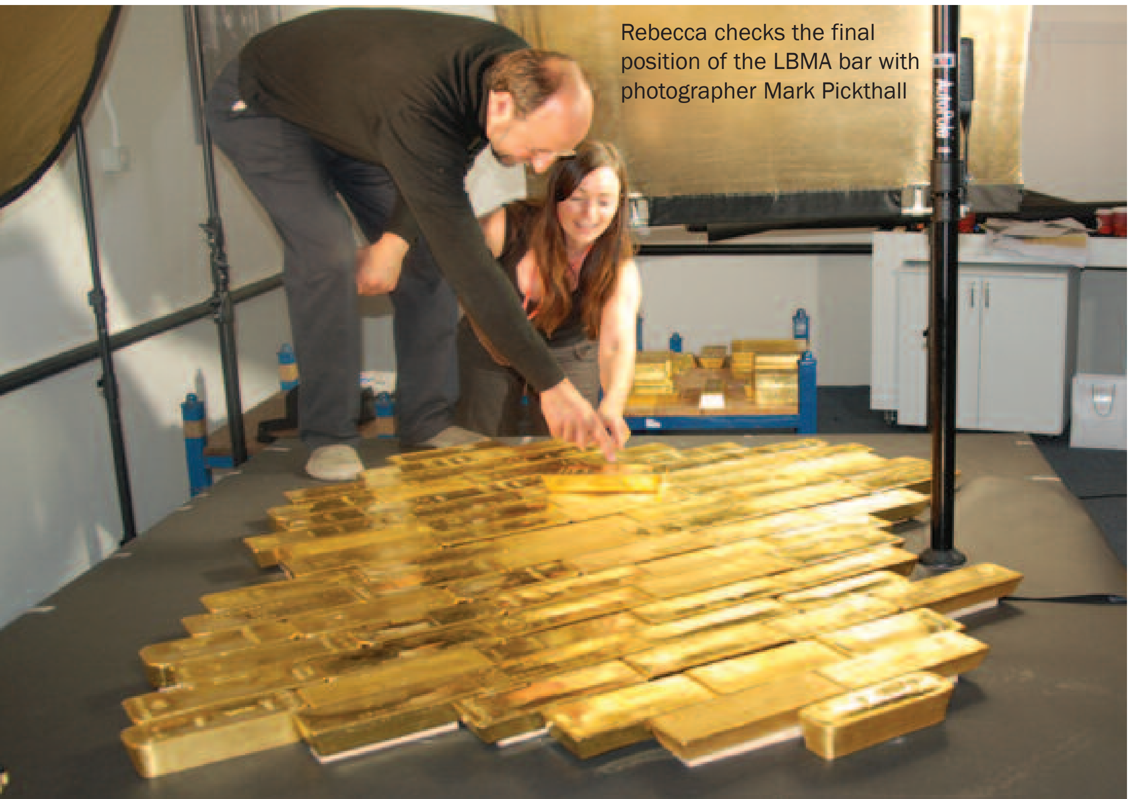
Rebecca Adamson has been an independent consultant for the LBMA since 2008, being employed initially in the creation of an intranet website containing a database of information about GD bars which is used by the London vaults. After the departure of Douglas Beadle earlier this year, Rebecca began assisting Stewart in the maintenance of the LBMA Good Delivery System – processing applications for accreditation and monitoring the Proactive Monitoring of GD refiners. This experience prepared her perfectly for the task ahead of turning Stewart's idea into a reality.

Realising that it would be difficult to fit all the different refiners on the cover, Rebecca planned the diagonal layout with 1:3 mock-ups of the bars, cutting and pasting to find just the right angle. In the process she became very familiar with the dimensions of many of the bars on the list! Having solved the problem of different widths, she constructed shims from wood and card to raise the height of the bars by precise millimetres, to form a level surface for the photograph. Existing GD bars vary in height from 34 mm to 50 mm!

Most of the bars were from the vaults of the Bank of England, which supported the project with great enthusiasm and allowed this very special photoshoot to take place on their premises. HSBC and JP Morgan contributed a few that were missing from the stock in the Bank's own vaults. The final photograph features 76 bars from 42 refiners, and one unique LBMA GDL bar specially produced by PAMP SA. Good Delivery refiners whose bars did not happen to be in the London vaults were invited to send them in for the photo.

On the day, Rebecca and custody staff at the Bank had an hour and a half to lay the bars out on a specially built table. There had been a dry run the previous week, when it took more than three hours to finish the layout, but practice made perfect and they were ready when the photographer, Mark Pickthall, of Ion River, arrived at 9.30 am, complete with a huge collection of lights and reflectors.

After three months of planning and a few final adjustments, the photographs were taken in a matter of minutes. The LBMA Executive would like to thank Rebecca and the Bank of England Custody Team for their hard work in allowing this unique photograph to be taken. ■



Rebecca checks the final position of the LBMA bar with photographer Mark Pickthall

Rebecca Adamson, LBMA Consultant

To see the final photograph in all its glory, order a copy of the Good Delivery List History (see LBMA News) or visit Rebecca's stand at the LBMA Conference.

Mark Pickthall is a designer and photographer who has worked on many LBMA publications. He can be contacted at pickthall@ionriver.com

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Credit Suisse was reclassified as a spot and options Market Maker on 19 August, bringing the total number of LBMA Market Makers to ten.

In order to qualify as an LBMA Market Maker, a company must offer two-way quotations in both gold and silver to the other Market Makers throughout the London business day. Reclassification is the responsibility of the LBMA Management Committee. In deciding on the issue of reclassification, the Committee takes account of the views of the other Market Makers on the performance of the candidate company during an approximately three-month probationary period.

The full list of Market Makers on the LBMA website now shows in full the products (spot, forwards and options) provided by each company, their participation in the gold and silver fixes and whether they act as clearers.

GOOD DELIVERY LIST

The silver refinery of Kazakhmys plc, located in Balkhash, Kazakhstan, was added to the Silver List on 21 July, 2010.

PT Antam's refinery in Jakarta, Indonesia – better known as Logam Mulia – registered a new gold bar in July 2010 with amended dimensions and markings which fully comply with the LBMA's Good Delivery specifications.

Good Delivery History – A New Publication

The LBMA has commissioned Timothy Green, the well-known author on gold, to write a history of the Good Delivery List. His work covers the era from the first listing by the Bank of England of refiners whose bars were acceptable to it in 1750 to the modern era in which the List is maintained by the LBMA. All Members, Associates and companies on the Good Delivery List will be sent a complimentary copy of the publication, which is priced at £25.

COMMITTEES

Management

In addition to its normal meetings in July and September, the Committee held a special strategy meeting in July to look at some of the longer term issues confronting the Market. The Committee has also reviewed the operation of the Market Making system in London for spot, forwards and options.

Physical

At its meetings in July and September, apart from monitoring progress with Good Delivery applications and proactive monitoring, the Physical Committee considered a draft Best Practice document for bullion vaults. It is felt that this is the most appropriate way of providing guidance to the vaulting community, including those companies which may be interested in setting up new facilities. The Committee is now close to finalising a Memorandum of Understanding on the application of VAT in the Precious Metals Market. This has been prepared with input from the LPPM so that the document can cover platinum and palladium as well as gold and silver. The MOU will be circulated to all Members once it has been discussed with and approved by HM Revenue & Customs. The Committee discussed at its most recent meeting the implications for the Market of the ideas put forward in the Editorial in the July *Alchemist* written by Tim Wilson of JP Morgan Chase. He suggested that the LBMA should have a greater focus on what is happening in the Asian market.

Public Affairs

The Committee's work has been continuously dominated by intensive discussions on the speaker programmes for both the upcoming conference which will be held in Berlin, as well as the Biennial Dinner and the associated seminar on 25th November. The Committee has also been investigating possible recipients for the LBMA bursary, in addition to its continued development of the LBMA's main PR activities such as the website and the *Alchemist*.

BIENNIAL DINNER - 25 NOVEMBER

The Biennial Dinner this year will be held on the evening of 25th November in Goldsmiths' Hall. Details of the event will shortly be circulated to all Members and Associates. Tickets will cost £110 plus VAT per person. The LBMA has as usual invited a number of guests from the precious metals industry and the official sector.

On the afternoon of the same day, the LBMA is holding a seminar in Goldsmiths' Hall which will address a number of topical issues, including regulation, developments in the London Market and issues facing central bankers.

COMMERCIAL ACTIVITIES

Reference Materials

Gold & Silver Reference Materials have now been distributed to all the Good Delivery Refiners who pre ordered them. It is encouraging to see that sales of the Reference Materials are now mostly to companies which are neither members nor represented on the Good Delivery List. The LBMA is now beginning to plan for the next phase of the Reference Materials project. A frequent suggestion has been that materials suitable for x-ray fluorescence analysis would be useful. Any comments on this idea would be most welcome.

Data Commercialisation

The automated production of the LBMA Market Makers' Gold Forward Curve will be delivered at the end of September. There has also been good progress on the LBMA/LME legal arrangements. We expect to finalise these legal arrangements shortly and look forward to further development in the area of LBMA data commercialisation.

Use of Good Delivery List

Possibly the LBMA's most valuable intellectual property is that contained in the Good Delivery List. Until now, Exchanges and Funds which make use of the List have been able to do so free of charge. In future, however, such use will be subject to a licence and an annual charge. The Executive has started to contact Exchanges which make use of the List in this way.

EVENTS

Visitors

Recent visitors to the LBMA included delegations from two Chinese banks, ICBC and the Bank of Communications.

REACH

The LBMA's work on REACH is almost complete, at least for the moment. Pre-registered companies will shortly be contacted by the Brussels-based Precious Metals Consortium about how they can gain access to the necessary Registration Dossier to complete their registration (and importantly the cost of obtaining it).

STAFF

We are delighted to welcome two new members of staff who joined us in the past month. Stuart Playford is our new Operations Director. He will take day-to-day responsibility for general administration of the Association, including specific responsibilities in Finance, Human Resources, IT Systems and Office Management. Prior to joining the LBMA, Stuart was the Operations Manager at Triland Metals Ltd in London. He has thirteen years of experience in similar Operations roles, with a particular focus on Finance. He is also a fully qualified Member of the Chartered Institute of Management Accountants.
The other new member of the Executive team is Alice Toulmin who takes up the role of looking after the *Alchemist* and website, among other things. Alice is no stranger to the LBMA, having previously worked here in a similar capacity on a temporary basis. ■

Chief Executive Presentations

The Chief Executive was the guest of honour at the 7th International Gold Convention held in Goa from 27-29 August, where he delivered a paper on "London and India – Two Great Interlocking Markets". A copy of his presentation can be found on the website.

The Chief Executive also gave a presentation to a group of Asian Market Makers at a meeting held in Beijing on 18th September.

DIARY OF EVENTS

OCTOBER

7
World Gold Investment Congress 2010
London
T: +44 (0)20 7092 1322
F: +44 (0)20 7242 1508
nicola.mackay@terrapinn.com
www.terrapinn.com

15-17
2010 China International Silver Conference
Beijing
T: +86-10-58276078
T: +86-10-62561821
www.jewellery.org.cn
www.antaike.com

NOVEMBER

23-25
Mongolia Investment Summit 2010
London
T: +44 (0)20 7827 5997
F: +44 (0)20 7242 1508
gina.geldenhuys@terrapinn.com
www.terrapinn.com

25
LBMA Biennial Dinner
London
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

DECEMBER

2-3
China Gold and Precious Metals Summit
Shanghai
www.chinagoldsummit.com
grace.zhu@igvision.com

FEBRUARY

24
LBMA Annual Party
London
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk


LIQUID GOLD AND SILVER FUTURES ON NYSE LIFFE U.S.
WHERE THERE'S LIQUIDITY, THERE'S OPPORTUNITY.
NYSE LIFFE U.S. HAS THE VOLUME AND LIQUIDITY THAT TRADERS ARE LOOKING FOR IN PRECIOUS METALS FUTURES. OUR FULLY ELECTRONIC, TRANSPARENT MARKET OFFERS LIQUIDITY IN 100 OZ. AND MINI GOLD FUTURES AS WELL AS IN 5,000 OZ. AND MINI SILVER FUTURES. TRADE PRECIOUS METALS ON NYSE LIFFE U.S., A MARKETPLACE BACKED BY PHYSICAL GOLD AND SILVER AND THE EXPERIENCE OF NYSE EURONEXT. EXPLORE THE UNIQUE OPPORTUNITIES AT NYSE.COM/METALS OR CALL 212-656-4300 FOR MORE INFORMATION.
NYSE Liffe℠ U.S.
THE U.S. FUTURES EXCHANGE OF NYSE EURONEXT
©2010 NYSE Euronext. All rights reserved. No part of this material may be copied, photocopied or duplicated in any form by any means or redistributed without the prior written consent of NYSE Euronext. NYSE Euronext and its affiliates do not recommend or make any representation as to possible benefits from any securities or investments, or third-party products or services. Investors should undertake their own due diligence regarding securities and investment practices. This material may contain forward-looking statements regarding NYSE Euronext and its affiliates that are based on the current beliefs and expectations of management, are subject to significant risks and uncertainties, and which may differ from actual results.

Meet the LBMA Executive

LBMA Conference Team

The LBMA Executive comes to Berlin in full force to run the LBMA's annual Precious Metals Conference. The LBMA Conference is the premier event in the industry calendar. 2010 has been a record year with the highest attendance of 450 delegates forcing registration to close on 23rd August. In 2011, we are looking forward to a larger venue in Montreal, Canada (18-20 September).

Stewart Murray, LBMA Chief Executive, founder of the LBMA Conference and host, welcomes the market back to his 11th Annual LBMA Precious Metals Conference. Ruth Crowell, Commercial Director for the LBMA, is the LBMA's Conference Organiser. Stuart Playford, Operations Director who has recently joined the LBMA Executive, will make his debut at the Conference. Collett Roberts is the LBMA's On-Site Conference Manager; and Varsha is Head of Registration. Alice Toulmin has recently returned to the LBMA and during the conference will act as the main contact for speakers and press.

Welcome to the Conference, and please come to meet the team!

Stewart Murray
Chief Executive
Conference Host

After qualifying with a first class honours degree in metallurgy from London University, Stewart studied for a PhD on titanium at Imperial College, London. In the decade up to 1984, he worked for the International Wrought Copper Council, serving as its Secretary General from 1980 to 1984. He then joined Consolidated Gold Fields where he was responsible for the group's base metals commodities research. In 1989, he set up Gold Fields Mineral Services (GFMS) of which he was Chief Executive for the next nine years. His own area of research at GFMS focused on the Middle East and the Indian Sub-continent.

His earlier interest in base metals was reflected in his involvement over a twenty-year period with the World Bureau of Metal Statistics, of which he was chairman from 1989 to 1991. In October, 1999, he was appointed Chief Executive of the LBMA.

Stuart Playford
Operations Director
Exhibitor Manager

Stuart will take day-to-day responsibility for general administration of the Association, including specific responsibilities in Finance, Human Resources, IT Systems and Office Management. Prior to joining the LBMA, he was Operations Manager at Triland Metals Ltd in London. He has thirteen years' experience in similar Operations roles, with a particular focus on Finance. Stuart is also a fully qualified Member of the Chartered Institute of Management Accountants.

Collett Roberts
Bookkeeper/
Administrator
On-site Manager

Collett is responsible for providing support to the Chief Executive in the management of the LBMA's financial resources. Collett is the Reference Materials manager as well as the events day manager.

Varsha Peiris
Administrator/
PA to Chief Executive
Head of Registration

Varsha is responsible for providing support to the Chief Executive and Commercial Director in the administration of the Executive Office, including office management, membership applications, the LBMA annual conference, the LBMA website and publications.

Alice Toulmin
PR and Media Assistant
Press and Speaker Contact

Alice's focus is on the *Alchemist* and LBMA website. She also works on other publications and PAC-related activities.

Ruth Crowell
Commercial Director
Conference Organiser

Prior to joining the LBMA, Ruth worked in bank finance and US corporate law at the law firms of White & Case and Norton Rose, as well as acted as a monitor at the UN Commission on Human Rights in Geneva. She has an MSc in History of International Relations from the London School of Economics and a degree in English Literature from Kenyon College in Ohio.

Ruth is responsible for the strategic commercial development of the Association, including Intellectual Property, Communications, and Events. Ruth is also responsible for overseeing the development of the LBMA Conference, the LBMA's quarterly publication the *Alchemist* and the LBMA website.

Regulation and Cleared Forwards

Editorial Comment by David Gornall, Vice Chairman, LBMA

Regulation has recently been a topic of interest for all financial markets, not excluding the bullion market. On 2nd September, the European Union voted in favour of the establishment of three pan-European financial regulators. This followed the precedent set by the US Financial Reform Act which President Obama signed into law on 21 July this year. While significant legislation has been passed in both the US and the EU, it remains to be seen what the impact on the bullion market will be, if any. Regulation may be a hot topic at the moment, but it is certainly not a new one.

Impact on the Precious Metals Markets

At the time of writing, it is still unclear how exactly Dodd-Frank will be enforced in the US and beyond. Although the law has been passed, the rules which will enforce it still need to be written by the SEC and the CFTC. In particular, regulators have until July 2011 to provide details and definitions for key terms. The definitions of these terms are especially important in regards to OTC derivatives. Many of the key terms in the derivatives legislation are either undefined or have been left for the regulators to fill in. How regulators define those terms will directly shape the impact of the new legislation on the bullion market. However, a likely impact of financial reform legislation on the bullion market will be further use of a Central Counter Party (CCP) to clear forward contracts.

The Dodd-Frank Act and the OTC Market

The Act aims to: "promote the financial stability of the United States by improving accountability and transparency in the financial system, to end "too big to fail", to protect the American taxpayer by ending bailouts, to protect consumers from abusive financial services practices, and for other purposes."

Regulatory agencies and procedure will be streamlined, redistributing existing powers in addition to new ones provided by the Act.

The SEC and CTFC have regulatory power over OTC derivatives. Cleared derivatives may be required to go through central clearing houses, with greater regulator involvement, while un-cleared trades will require a capital offset.

Improving transparency translates to greater data collection, to be published for the use of regulators and customers.

Clearing via CCP

New rules set by the CFTC and the SEC are expected to address the clearing of OTC derivatives via a CCP. On 26th March, 2009, Tim Geithner, United States Secretary of the Treasury, proposed to force all vanilla OTC derivatives to use a CCP. It is still unclear whether the CFTC will make clearing via a CCP mandatory for all OTC derivatives. Although it may not be mandatory, the alternative to CCP may be to remain bilaterally settled. However the regulator is likely to charge a higher counterparty credit risk fee, which may make this prohibitive. The pension fund industry in particular looks poised to be affected by these new rules. If derivatives and other markets are forced to be cleared via a CCP, it is currently expected that it will be the buyside that will bear any additional costs.

Market Response

Following my article in the *Alchemist* in April 2009, Cleared Forwards have gained momentum. On 21st September, 2009, the CME Group launched its cleared forward product. Now LCH.Clearnet is set to launch its own product in a joint initiative with the LME on 8th November, 2010. The LBMA has also moved ahead in this area with the creation of the LBMA Forward Market Makers' Gold Forward Curve. This data set has been collated for the past year by the LBMA and will be automated by the end of September. LBMA Market Makers have put the bullion market ahead of the game with the creation of the LBMA Gold Forward Curve data set, which is designed to assist all cleared forward products.

While we will have to wait and see whether all OTC derivatives will be forced to use a CCP, the option to do so is already there. And while there is a lot of fear of the unknown surrounding cleared contracts, there are also potential benefits. Having the option of clearing contracts via a CCP would allow better and cheaper credit mitigation. This would also allow more clients, without large bilateral credit facilities with their counterparty banker or dealer, to access OTC markets. In my opinion, the use of CME Clearport for the energy markets has already achieved this. ■

facing facts

William Tankard
Senior Mining Analyst
GFMS Ltd

The Rise and Fall of the Gold Producer Hedge Book

It was just a few years ago that the hedging activity of certain gold producers was the main topic of conversation in the gold market. At their worst, the hedgers were blamed for depressing the gold price and, at their best, they were praised for ensuring the survival of their companies in a period of low gold prices.

With a sustained gold bull run to over US$1,200/oz, hedging became a factor on the demand side of the market and, most recently, has hardly been a factor at all.

In this article, we trace the history of hedging in the modern gold market.

GFMS calculates that at end-June 2010, the global gold producer hedge book amounted to just 224 tonnes, less than 7% of the hedge book volume at its peak in mid-1999 of 3,300 tonnes. The scope for de-hedging to materially support the gold price, as has been the case in a number of rallies during the current bull run, is now very limited, making it an appropriate time to briefly review the rise and fall of the practice of gold producer hedging, which has at times over the past 20 years been a significant driver of the price.

The emergence of producer hedging being undertaken against

substantial volumes of gold commenced in the 1980s.

Forward sales were the initial mechanism, but they were soon joined, and effectively superseded, by the gold loan, generally put in place against projects as a means of establishing finance for mine development. The other theme of the late 1980s was the limited use of opportunistic forward selling in order to secure prices perceived as high relative to the cost of production. These initiatives were in the main led by Australian and North American producers, with the former, even today, often regarded as being a leader where hedging trends are involved. At the other end of the scale, some companies sold forward in order to secure cash flow in times of distress; at least one high-cost South African miner managed to stay in business in the early 1980s as a result of such activity.

Towards the end of the decade, hedging intensity waned as the gold price pulled back and the pipeline of projects that required financing contracted, leaving the total hedge book standing at around 900 tonnes.

As price volatility remained low, but with the price itself trending gradually lower, through the early 1990s, the book registered a steady but unremarkable build, with the exception of a handful of large project financings, many of which were tied to capital-intensive deepening projects in South Africa. From 1996, a renewed slide in price (over a decade to end-1997, gold lost roughly 40% of its value in nominal terms, falling below $300/oz) reinforced the utility of hedging:

Firstly, entering into hedge positions had become an increasingly necessary means of facilitating debt finance for those that required it. This had been exacerbated by greater investor caution towards resources stocks in the wake of the Bre-X scandal, making raising capital via the equity markets especially challenging.

Secondly, the revenue enhancement that could be achieved versus the spot market was plain to see. Those that had the foresight, or luck, to embrace a major hedging strategy early on, such as Newcrest and Normandy (subsequently acquired by Newmont) were the stand-out winners, with Barrick Gold not far behind: by 1997, their earlier hedges were enabling these companies to beat the London average price for gold by $100/oz or more, representing a premium of 30-40% on their sales compared with unhedged producers. As margins were progressively squeezed, the stark contrast between the 'haves and have-nots' served to further encourage more producers to hedge as companies vied for survival as an increasing number of producers' margins turned negative. In addition to establishing a floor for a gold price – which, to many, it seemed inevitable would decline further – producers could achieve a premium to spot sales by selling forward in a market in contango, which for a contract 12 months forward was generally around 3.5-4.5% and could be significantly improved if compounded over several years. In due course, this led to hedge positions representing valuable balance sheet assets as the gold price did fall, which of course was partly being driven lower by the accelerated supply of gold by the practice of hedging itself.

These factors were appreciated by company management, shareholders as well as the banks that structured and aggressively marketed lucrative products, and which led to a hedging explosion. This was the case not only in volumes hedged, which GFMS estimates had reached almost 3,300 tonnes in mid-1999, but also in the increasing complexity and potential short gold exposure of exotic products that were structured for some producers.

The first Central Bank Gold Agreement, signed on 26th September, 1999 in an effort to calm market fears about sporadic large-scale official sector sales, limited the participating signatories to combined official sector sales of around 400 tonnes per year. Possibly of more significance at the time, it froze the amount of gold out on loan. This caused a price rebound and a massive speculatively-driven spike in lease rates, with gold for one month briefly reaching 10%. The consequent hedging crisis led to margin calls being made against several producers' positions and, in some cases, caused insolvency in late 1999. It certainly caught out one of the largest hedgers, Ashanti Goldfields, which was forced to hastily seek a restructuring of its positions with its banking counterparties, leading to the sale of 50% of one of its major assets, Geita, to AngloGold (and ultimately, the loss of the corporate identity in 2003, when it was acquired by AngloGold to form AngloGold Ashanti).

In the wake of these dramatic events the previous year, 2000 represented a period of apparent calm, or more appropriately, uncertainty, before the situation changed dramatically. Since the gold price bottomed out, and subsequently enjoyed an almost continuous rally, producers have aggressively de-hedged in order to gain greater exposure to the rising price. With high production cost inflation broadly following the gold price rise, hedged producers have suffered increasingly diminishing profits due to the price-capping effect that much hedging has had on sales revenue. These factors, and occasionally the lack of transparency of hedging structures, have led to the now staunchly anti-hedging sentiment that is prevalent among gold equity investors and gold mining companies alike. This has led to the elimination of over 3,000 tonnes of hedged gold on a delta-adjusted basis since the peak, as producers not only delivered into hedges as they matured, but in several significant instances, proactively bought back ahead of schedule, backed by investors, while other significant hedges were restructured in the process of industry consolidation or unwound by the administrators of failed enterprises. Latterly, the historically low interest rate environment has eroded the contango, reducing any incentive to hedge.

Although a small handful of producers have recently engaged in project hedging and one diversified miner entered into a multi-year put/call option structure to secure the viability of its gold assets out to 2015, hedging remains firmly out of vogue with most of the key producers. This does lead one to beg the question of whether we now find ourselves at the end of the hedging era or whether this marks the bottom of the first cycle. Since the price will not always be going up and a decent contango will likely return from the current low levels, don't write off a return to hedging forever! ■

William Tankard

william.tankard@gfmsworldgold.com

The Alchemist is published quarterly by the LBMA.
For further information please contact Alice Toulmin,
3-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The *Alchemist* is designed by Ion River
Cover image from www.airphotona.com

The Art of Precious Metal Transformation™

Knowledge

PAMP SA Switzerland - Precious Metals Refinery and Fabricator
Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

Innovation

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as **'Good Delivery'** by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five **'Good Delivery' Referees** of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

Vision

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPM
GOOD DELIVERY REFEREE

Alchemist

The London Bullion Market Association ISSUE 61 January 2011

LBMA

In this issue

Photograph © The Trustees of the British Museum

The Hoxne Hoard – Found in Suffolk in 1992, this hoard of gold and silver coins, jewellery and tableware was buried during the collapse of Roman rule in Britain. Although we will never know exactly why, one of the theories advanced is that it was concealed as a bulwark against the uncertain times.

Do physical buyers today have similar motivations? The Hoxne Hoard remained secure for 1,500 years. From the LBMA Precious Metals Conference in Berlin, Wolfgang Wrzesniok-Rossbach explores the drivers of physical demand (page 16), while William R White focuses on declining financial empires and attempts to prop them up (page 10).

Heraeus

Precious Metals Trading. Refining. Investment. Industrial Products. An entire world in just one word: Heraeus.

At one time precious metals were the currency of the world. Even today they are still treated and traded as financial products; globally, unrestricted by place and time. For just as long, precious metals have also played a vital role in a manifold of industrial applications.

Heraeus has played a vibrant role in both areas for almost 160 years, and during this time our company has earned a reputation as a leading expert and competent partner for the refining, trading and manufacturing of precious metals.

Strongly supported by our four trading units in Hanau, Hong Kong, Shanghai and New York, we assist our customers in professionally managing the risks associated with the physical acquisition, price fluctuations or financing of precious metals.

In addition, our company also offers a large number of products to investors: A wide range of gold, silver, platinum and palladium investment bars, from a filigree 1 gram gold bar right up to a massive 5 kg silver ingot, can satisfy the wishes of any physical investor.

Hanau	Hong Kong	Shanghai	New York	
tradinghu@heraeus.com	tradinghk@heraeus.com	tradingsh@heraeus.com	tradingny@heraeus.com	
Phone +49 6181.35-2750	Phone +852 2773 1733	Phone +86 21 33575675	Phone +1 212 7522180	www.heraeus-trading.com

Regulation

Financial Reform & the Gold Market

By Barbara Ridpath, Chief Executive, International Centre for Financial Regulation

The following is an edited version of a speech made at the LBMA Bullion Market Seminar on 25th November, 2010.

The research institute that I run intends to bridge the gaps between economics, policy, finance, law and accounting when it comes to regulation because, too often, people look at just one aspect and not the interactions. We spend much of our time questioning conventional wisdom and encouraging market participants to talk outside their usual group of like-minded members. More often, when you look at the same subject from different perspectives, you will get new ideas or approaches, and certainly a much better idea of some of the unintended consequences that moves on accounting, legal or regulation can have on your business, both intentional and unintentional.

It is really important to say that everybody in this audience knows far more about this business than I know. I know regulation, you know gold, and so, between us, perhaps we can figure out what the implications are.

To this end, I will attempt to do the following:

- Give you a sense of the regulatory context and how it touches your activities.
- Set the context for the changes underway. Talk generally about the causes and consequences of these changes.
- Look at the reactions in different geographic zones – Europe, or more specifically the European Union, the United States and then a very quick word on everywhere else.
- Give you a general sense of how it affects your industry, while recognising that you all have ideas about that.
- Finally, conclude on whether this will do anything to prevent the next crisis, about which you might be able to tell already I am a bit of a sceptic.

Regulatory Context

I will spare you the details of what we have all lived through from 2007 to 2009. You will remember it as well as I do, but I would encourage you to remember what happened then and how it felt. Memories are short, and nowhere shorter than among the staff of financial services firms. All of us know the quotation from George Santayana, who said: 'Those who cannot learn from history are doomed to repeat it.' In fact, I think there were some extremely salutary lessons from this crisis, and the three that I hold on to, I think are relevant to your business. First, liquidity is never really there when you need it. Second, in a crisis, correlations of all asset classes move toward one. And finally: the world is far more interconnected than we realised.

Changes
Minimising the Amplitude of the Previous Crisis

In the wake of the crisis, regulators, politicians and the tax-paying population all vowed that they never wanted to see a repetition of this ever again. Of course, this is hyperbole at its absolute finest, because the one thing that you can be sure of, if you were ever a student of economic history, is that booms and busts are an inevitable part of human behaviour. At best, you can try to prevent the last crisis from recurring, or to root out the key contributing factors of the crisis in the hopes of lowering the amplitude of any future crisis. I think that is where we are now: at very best, we are trying to make sure that we do not get the amplitude of the crisis like we saw last time.

Reform of Financial Market Practices

The official sector in particular took full advantage of the crisis to slip into the G20 process redress of some choice financial market practices that it had always hated, such as measures against tax avoidance via offshore financial centres. I am completely neutral on offshore financial centres, but I can tell you that they had absolutely nothing to do with the crisis.

Consequences
Unintended Consequences

To date, your market has been largely spared, and certainly not targeted in any way, though that may not be true forever, because there are three direct or indirect consequences of the regulatory moves on your business. First is the indirect threat of these dreaded unintended consequences, or regulations not specifically meant for you that seem to affect your business either directly or indirectly. While possibly unlikely, it is worth keeping your eye on some of these issues, and I will speak about them in more detail shortly.

Macroprudential Supervisors

Then there is the mandate of the new macroprudential supervisors to look at aggregate moves in price movements for signals of nascent asset bubbles, and to prick them early. Given the current run-up in the gold price that you have seen, I suspect that this is already stirring concern among the people who are going to do macroprudential supervision, wondering if this is a bubble that needs bursting. Fortunately for you, they are still so early on in their deliberations of what data to watch and what tools to use to act – and some of them do not yet have the authority to act – and then how to co-ordinate anything across markets if they do act, which I do not suspect they will, that you are fairly safe for a while.

This, however, is why David Gornall's presentation mentioned the data: they want to know flow data, stock data and price data. For those of you who remember Defence Secretary Rumsfeld, they want to know the unknown unknowns: 'What am I not watching that I should be watching that might be trouble in the future?' They are going to ask for volumes of data, and at the very best we can try to help them think about this so that they have useful

Bullion Market Seminar 2010

The LBMA held its first Bullion Market Seminar in conjunction with the Biennial Dinner. This Seminar took place at Goldsmiths' Hall, on the afternoon of Thursday 25th November.

Programme

Precious Metal Market Prospects and Challenges
Kevin Andrew Crisp, Chairman, LBMA

Developments in the London Market – Cleared Forwards
David Gornall, Global Head of Precious Metals Trading, Natixis Commodity Markets

Regulation
Barbara Ridpath, Chief Executive, International Centre for Financial Regulation

Prospects for Gold in 2011
Edel Tully, Precious Metals Strategist, UBS

The LBMA Good Delivery System
Stewart Murray, Chief Executive, LBMA

data on a consistent basis, rather than you being asked to produce different data sets in different currencies on different dates for every different regulator in the world.

Fear of Inflation

Most importantly, the fiscal stimulus after the initial crisis made people worry about inflation. The monetary stimulus, then, and the current quantitative easing (QE2) by the central banks simultaneously drove interest rates down and raised inflation worries. Interest rates in all but the periphery of the Eurozone and the emerging markets trying to stem the inflationary inflows are at all-time lows, so that US Treasury Inflation-Protected Securities (TIPS) currently have negative yields. Suddenly, gold, which has really no cost of finance when real interest rates are negative, can do nothing but soar, because no one – even the consumer – has the cost of carry that they used to have.

If there are negative interest rates, a fear of inflation and huge economic uncertainty, and particularly volatile currency relationships across countries, it seems to me that this is the ideal moment for gold. You are the experts, but I feel a little sorry for the retail investors in gold exchange traded funds (ETFs), those holding gold or even those sending their plastic envelopes of gold to the factories, if they fail to get out before real interest rates go positive again.

Geographic Reactions

UK

If I can switch to the nuts and bolts of the financial system and what is changing, and try to touch on the interactions across sectors, we talked a little about quantitative easing and macroprudential stability; now, let us look at UK legislation, EU legislation and the US Dodd-Frank Act and how they may affect you.

Conduct of business in the London bullion market seems to fall under two jurisdictions, by the type of business. The FSA is responsible for investment businesses defined under their Act, which covers derivatives. The requirements upon firms in their dealings with market professionals are set out in the Markets in Financial Instruments Directive (MiFID), which is an EU legislation currently under its three-year implementation review. Gold swaps and forwards are covered by different regulations than pure bullion trading. It is conceivable or even likely that, in the new regulatory framework or architecture in the UK – it is not the rules but the structure – your sales to retail could come under the Consumer Protection and Markets Authority.

It also does not take an expert in your industry to pick up on the fact that regulatory and supervisory differences among players and gold-based instruments must almost, by definition, create arbitrage opportunities. It is also fair to say that it is in the reconstruction of the UK regulatory and supervisory architecture that the gold market is probably not at the top of their list of things that they are worried about, so that is good and bad: while you are falling between these cracks, you are not something that they seem to be particularly bothered about.

US and EU

Dodd-Frank Act

If we look now at OTC derivatives legislation in Europe and the US, the omnibus Dodd-Frank Act was passed in July, with the details to be completed by regulation largely written by the Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC), and in small part by the Federal Reserve, in the 12-18 months following the Bill's passage. The regulations are starting to appear at a pace that is difficult to keep up with.

The Act allows banks to retain operations for derivatives on bank-eligible instruments, including interest-rate swaps, foreign-exchange swaps, gold and silver swaps, and probably cleared CDSs, among others, as well as for hedging and risk management, which is the bulk of most banks' activities in these areas. You need to know, however, that the reason that I am talking about this, without going into detail, is that there is something called the Volcker amendment, which requires banks to get rid of many of their interests in derivative, hedge-fund and private-equity subsidiaries. Firms will be required to push trading in uncleared CDSs, agriculture, uncleared commodities, most metals, energy, etc to separately capitalised affiliates, to be phased in over the next two years.

EU/US co-ordination

EU legislation is at an earlier stage, although the warm and fuzzy noises between Chairman Gensler of the CFTC and DG Markets Commissioner Barnier of the European Commission suggest that they will co-ordinate so that regulations are as consistent as possible in both jurisdictions. That is in the 'I will believe it when I see it' category, because they will make things that sound like they are the same, as the G20 does. The G20 makes regulations where everybody says that they can be compliant, but they will do it in a detail that means that, in fact, you may have to set up your systems differently to monitor what you are doing in the US versus in Europe.

They have also emphasised the importance of clearing, transparency and regulating commodity derivatives. They have never, to my knowledge, mentioned gold specifically. Both, however, as we have heard, really like central clearing counterparties (CCPs), and these are likely to be widespread, though, I dare say, just shifting systemic risk to the CCP instead of leaving it within the financial institutions. If those are well monitored and have central bank access, they are made what is effectively called a systemically important financial institution (SIFI), which is not necessarily a bad thing, as long as they are correctly capitalised, have the right reserve funds and take risks appropriately.

Irish bonds

Since mention was made of the Irish bonds, the example that I found most amazing is that much of what is going on in the debate about the Irish restructuring right now has to do with LCH raising the margining requirement on Irish government bonds by 15%. The moment they did that, nobody wanted to get more Irish collateral, nobody wanted to pay the margin, and they all started dumping their Irish bonds on the market, which made the yield shoot up. Effectively, you have given huge pricing power to these CCPs to drive the price of the securities on the market, based on their margining requirement. This is a core unintended consequence that nobody thought of when they put the CCPs in this role. I cannot believe how, in all the pages of the pink paper on Ireland now, people are not talking more about how this was, in many ways, spurred by LCH's decision to raise the margining requirement on Irish securities. For once, it was not the rating agencies causing the trouble.

Basel Committee

We are going to come to the Basel Committee and their decision on liquid assets versus collateral. Interestingly, ICE Clear Europe, owned by IntercontinentalExchange, announced last week that it will be accepting gold as collateral for margining, but only on the initial payment. I thought that that was quite interesting. LCH.Clearnet has been considering accepting gold for some time, but has not yet named a timeframe.

The Basel Committee on Bank Supervision gets together to think about what the rules should be for bank capital, liquidity and leverage in most of the major economies of the world, and what they say is often followed in a much larger region. I find this private willingness to take gold as collateral very interesting in light of the fact that the Basel Committee has thus far refused to contemplate gold as a liquid asset. I am going to pick a bone here: it is slightly different than as collateral, because what they are concerned about is, when the liquidity crunch came in August 2007, everybody sold assets into a down market, and the spiral was sent downwards.

What they are trying to do is ensure that, in future, banks are not so heavily dependent on short-term funds that this would happen again. They are, then, stipulating a net stable funding ratio (NSFR), and the question is: what assets are going to be counted as liquid assets in that

NSFR? They are limiting themselves largely to government securities; hence the irony of the Irish issue. This is important and you all probably know that the World Gold Council is continuing to fight for the inclusion of gold in this. It is, however, something that I have sympathy with the Basel Committee on, just because of having seen the correlations converge to one in a crisis and having seen, even though gold is ostensibly more volatile upwards than downwards, in downward volatility, when everybody is trying to sell into a falling market and there are no stop losses in the precious metals market, there is an issue with this being available as a liquid asset.

DRC amendment in Dodd-Frank

The DRC amendment in Dodd-Frank, is one of the most amazing ones. I only learned about it this summer and I was aghast, not because of you and your industry, but I will explain. The Democratic Republic of Congo Amendment in Dodd-Frank – and this is the first time that this has ever been done in US legislation – involves rules of public disclosure on conflict minerals. There are supposed to be rules coming out in December this year. The amendment in Section 1502 of the Act requires reporting to the SEC by any listed company who uses any DRC product in their manufacture. The requirements are likely to impose due diligence requirements, restrictions and limits on minerals supply chains. Needless to say, such changes would most likely affect miners, refiners, commodities traders and banks.

This hits you directly. Why is it that I am more worried about it for other reasons? This is the first time the SEC has been used to impose reporting requirements for political reasons, however valid you might think these reasons to be. In future, the precedent exists for doing this whenever they want and whenever any legislator wants to do it on any pet project or issue that he or she has. This could really completely gum up reporting at the SEC and the utility of the information that is produced for investors. It will also keep them from doing their day job as they monitor all of that.

Elsewhere

I have not talked about elsewhere because, for the moment, regulation has been relatively light outside of the US and the EU. To be fair, the G20 jurisdictions, wherever they are, have taken most of the banking regulation on board, and many of them will take on some aspects of the OTC derivatives regulation. They will not take on things like the hedge fund directive, the Alternative Investment Fund Managers Directive (AIFMD) and European issues like that.

It is, then, fair to think that there might be a shift in business to kinder, gentler jurisdictions, but this is unlikely purely on cost, regulation or compliance alone. Nonetheless, when you add cost, compliance, tax change in the west, on both a personal and a corporate level, and the shifting growth in wealth to the east all together, there is a strong argument that the east will become the new growth area for financial services as a result of the simple adage 'follow the money'.

Future Uncertainties

French G20 Presidency

That is the state of play so far and I would like to talk a little about two future uncertainties, the first of which is what the French G20 presidency will bring with its focus on commodities regulation. We can only say 'wait and see', because the EU has also promised, via Barnier, who is French, that commodities derivatives reforms are coming, and this has been made a high priority for France since it took over the G20 presidency. The Minister of Economic Affairs, Christine Lagarde, has been vocal on it, but the focus has been largely on agricultural commodities and derivatives, not on metals. For the moment, then, your markets are fairly safe, but I would urge you to continue to watch, listen and talk, so that you hear.

Republican Majority in House of Representatives

The second uncertainty is the new Republican majority in the House of Representatives, which may mean in the US that changes to Dodd-Frank will appear, or that there will be some delay in its adoption. It is possible that a more Wall Street-friendly House could look more favourably on the financial sector, seeking to withdraw some of the Bill's more stringent and contested rules, although these would still have to pass the Democratic Senate and avoid President Obama's veto. On the other hand, the Tea Party is not much of a friend of business or of financial services, so the very right-wing Republicans are not necessarily likely to support that. For those clinging to the new House majority to make dramatic changes, I am slightly less optimistic.

Preventing the Next Crisis

Decreased Likelihood of Bank Failures in the Short Term

Finally, will the regulatory changes underway do anything to prevent the next crisis? I do believe that increased capital, leverage and liquidity requirements will lower the likelihood of bank failures in the short term. I also believe, however, that incentives to find ways around these new rules are very high, and the cost increases to banking will be sufficiently high as to encourage non-bank competitors still not captured within the regulatory net. The next obvious question, for those of you in the gold market who are owned by banks, is how they are going to look at their business opportunities, their relative weighted cost of capital, and their gold divisions' profitability, to decide which businesses they keep and which they lose in order to maximise their own profitability and return on equity.

Macroprudential Supervision

I also believe that the surveillance of systemic risk, or macroprudential supervision, is critical, as it is the cumulative position of all players in the financial sector that matters most, not the position of any one bank. I am, however, sceptical that the supervisors will be able to determine the data and tools they need to do this well anytime soon. Moreover, I am even more sceptical of any country's macroprudential supervisor, even when equipped with the correct tools and data, being in a position to enforce change. This is the famous 'taking away the punchbowl when the party gets going'. It is a very hard thing for a central banker to do. I am even more sceptical of their ability to enforce change outside their own borders. So far, there have been some productive suggestions but little concrete moves to improve processes for cross-border crisis resolution, which, to my mind, is the critical thing to prevent the contagion we saw in the last crisis.

In sum, regulators have done what is easiest first, and the hard work remains. ■

Barbara Ridpath *is Chief Executive of the ICFR. Prior to her current position, she was Executive Managing Director and Head of Ratings Services, Europe, for Standard & Poor's, responsible for Standard & Poor's rating activities in Europe, the Middle East and Africa. Before that she was Managing Director and Chief Credit Officer, Europe based in Standard & Poor's London office, where she was responsible for the development and application of ratings policy in Europe including its global consistency.*

Barbara joined S&P in 1983 after three years as an economist at the Federal Reserve Bank of New York. From 1993 to 1998 Barbara was a Senior Credit Officer at JPMorgan Europe, rejoining S&P in 1998. Barbara holds an A.B. degree cum laude from Smith College and a Master's in International Affairs from Columbia University.

For its **12th Biennial Dinner**, the LBMA returned to the Goldsmiths Hall where the first dinner was held in 1988. The dinner was attended by more than 200 representatives of Members and Associates, together with guests from other markets, central banks and HMRC. The speech by LBMA Chairman, Kevin Crisp (which is reproduced on the website at www.lbma.org.uk) focused on the LBMA's achievements during the past year and plans for the future.

The LBMA welcomed back Sir Howard Davies, Director of the LSE as its chief guest. Sir Howard first addressed the LBMA Biennial Dinner in 1996, when he was Deputy Governor of the Bank of England. His remarks focused on changes in the gold market and global economy since his last appearance at the Biennial Dinner. Even the ivory towers of the LSE have been affected by the changes in the global economy, with the issues of university fees being a hotly debated topic. "I'm thinking of expressing the LSE fees in future in troy ounces of fine gold. I think we could do you a decent three-year degree for 24 ounces. Put that way, it sounds like a bargain." Sir Howard went on to discuss in depth the challenges facing the world's financial system. Touching on gold's role in the global economy, he noted: "We cannot possibly ignore the signals which the gold price is sending us about the anxieties many investors feel about the apparent inability of the world's financial authorities to resolve the problems I have described tonight. Gold is, if you like, the canary in the coal mine, and it has been squawking – if that's what canaries do – very loudly in the last year or so."

Following on Sir Howard's entertaining and enlightening address, Mr Martin Stokes, former LBMA Chairman responded to a toast to the guests given by the Chairman. Mr Stokes also gave an entertaining perspective on the changes in the Association since he was Chairman. In particular, he noted that "given the market volatility and the level of client interest in gold and silver, the members of the market are surely better placed now than ever before to fund such generous hospitality". 2010 has seen more interest in the market and the Association than ever before, prompting Mr Stokes to remark: "The LBMA continues to combine stability with innovation." ■








LCH.CLEARNET

LONDON METAL EXCHANGE

Clearing for the London Bullion market

Optimise your business

Risk mitigation

Operational enhancements

Capital efficiencies

www.lchclearnet.com/commodities/gold

www.lme.com

A Day in the Life of an Independent Inspection and Assaying Supervisor

By Andrew Smith, Precious Metals Manager, Stewart Inspection & Analysis Ltd

05.30

Today is the fourth and final day of our independent auditing of Good Delivery gold and silver bars at a vault just outside London. Work is expected to start at 8am. First decision, pending on the traffic reports, is to either "let the train take the strain" (not always the case nowadays) or face the dreaded M25. Based on my experience from the previous three days, it's a close call as journey times have ranged from one hour 40 minutes to over three hours…decide to go by car.

05.50

Leave home, stop to get a sandwich for lunchtime (once you are in these vaults, with the high-security checks, popping out for a quick lunch can be quite a performance).

07.30

Good journey – arrive well in time for kick-off. Attending on time is a very important part of our service, as both works and refineries in particular have labour deployment to arrange as well as meeting tight production schedules.

Quick check on the Blackberry for overnight/early morning e-mails, answer the three most important ones involving attendance for new inspections. As often happens in our business, inspections are advised to start at short notice. Contact our Precious Metals team in Knowsley, who provide excellent support and will liaise directly with the client and our representatives or overseas offices to arrange attendance and handle all the administration.

08.00

After the normal security process, commence the inspection of the Good Delivery gold bar inventory.

This particular Good Delivery gold bar audit involves checking the bar numbers, the refinery marks and fineness against the advised bar list.

My initial overall impression of the bars is that the quality of refining, marking and the general appearance have improved noticeably over the years with the progression of advanced melting and casting processes and tightened quality control.

Out of interest, I was looking for the oldest bar, which was a US-produced gold bar cast in 1926 when the gold price stood at just $20.67/toz (around £4.25)! Amazing to think that this bar has been vaulted for over 80 years.

Checking each bar is a bit like going through your old record collection – refiners from the old Good Delivery list, names forgotten or changed. We are always learning something new in our business; for example, some bars were stamped R & R Ltd, which after checking my list of refiners showed that these were from the original Rand Refinery.

The newer gold bar production looks fantastic, with gleaming polished surfaces, perfect edges and easily readable marks – perfect for uniform stacking on pallets.

11.30

Gold audit completed, early lunch break and time to check this morning's e-mails.
The normal mix of e-mails: enquiries for 135 kg of alluvial gold (a bit less than yesterday's request for sampling 5 tons of bars in a Bangkok warehouse!).

Appointed by a refinery in China for an inspection of their Good Delivery silver production under the LBMA Pro-Active Monitoring Programme. Our local office attended at this refinery on the last inspection in 2007, which makes arrangements far easier. Standard Fixed-Price LBMA quote to be sent, also need to arrange attendance, not forgetting to send them the LBMA silver mould.

New job appointments, checking reports, assaying results, price quotation requests for supervision and assaying etc., plus of course invitations to attend yet more conferences. It seems like every week there is a conference somewhere…must be a lucrative business (don't suppose I can persuade management that I should attend the summer conference in Rio!).

12.15

Resume the inspection of the Good Delivery silver bars. The physical handling of the gold bars was easy compared with the silver bars. I'm now nearing the end of checking almost 3,000 bars weighing approximately 90 tons…operators in these vaults must have arm muscles like Rambo's.

The silver bars have been produced by numerous refiners and show a wide range of weights and different dimensions. The physical quality of the bars has certainly improved over the years and is even more noticeable than the gold bars, with brighter, smoother and flatter surfaces, less shrinkage, fewer gas holes and smoother or rounded edges. The recent prohibition of bars produced from closed or gated moulds certainly provides a safer bar, as that form of casting can result in very sharp edges. The new recommended dimensions for the bar undercuts has also assisted in safer handling/storage.

One can appreciate the handling problems involved in stacking and palletising bars which are of various dimensions. The vaults do an

Gleaming recently produced gold bars – easy to stack

The contrast between older and newer Good Delivery silver bars

excellent job in repacking/palletising bars for storage delivered from the airports.

Some of the older stored bars have been moved from vault to vault during their lifetime and consequently, over the years, several different marks may have been stamped on the bars. As a result, finding the original refiners' bar and cast numbers can be a time-consuming process, as these can be located on different areas of the surface. Some of the bars are also stamped in Cyrillic lettering (lucky I took my Russian alphabet guide with me!)

The introduction of dot matrix markings at the end or top surface of the bars certainly makes for easier identification as does the new bar numbering system.

Final check with the Vault Manager to agree the final bar tally and the recorded data details.

16.00

Having completed the audit, travel home.

18.30

Arrive home, quick cuppa, then check e-mails.

Andy Smith *has been employed in the independent supervision and assaying business for over 40 years. He is involved in inspection, technical support, sampling and business development for the Group's Precious Metals Division. He has been employed by the Stewart Group, formerly Alex Stewart Assayers, since 1990, and during that period, has travelled extensively on precious metals assignments.*

First job is to e-mail the client with details of the completed audit; will prepare the final report tomorrow.

Make arrangements for tomorrow's job, which is in Sheffield and vastly different to today's; this job will involve the inspection of a dismantled Nitric Acid Plant for the recovery of PGMs from the boilers, superheaters, heat exchangers and steel pipework, etc.

Other new appointments requiring attention involve gold jewellery scrap, spent reforming catalyst, alluvial PGM concentrates and ethylene oxide silver catalyst, not forgetting the client enquiring about his assay results (after all, we did receive the samples yesterday!).

19.30

That's it for the day; early start tomorrow in Sheffield… M1, here I come! ■

Will this Crisis Never End?

Causes, policy responses and the outlook

By William R White, former Chief Economist, Bank for International Settlements

The following is an edited version of a keynote speech made at the LBMA Precious Metals Conference in Berlin on 27th September, 2010.

Preamble

Things look really interesting in the gold market. However, just because things look good, it does not mean they are going to continue to be good.

You will remember Donald Rumsfeld a while back saying: "There are things we know we know; there are things we know we do not know; but there are also things we do not know we do not know." People initially thought he was silly and pretentious, but I thought he was pretty wise. That is one form of uncertainty; the things that creep up on you from behind.

There is a second form of uncertainty. Mark Twain got it right, about a century ago, when he said: "It ain't the things that you do not know that getcha; it is the things that you know for sure what ain't so." A second source of uncertainty is that we may believe things that are not true.

Is there room for gold in an uncertain world? I think there is.

The Nature of the Crisis

Everyone, including the policy makers, thought the great moderation was going to go on forever. Accordingly, there was general surprise when it began to unwind. Right at the start of the unwinding process, Ben Bernanke said: "This is a $50 billion problem, but it is going to be confined to subprime." Do you remember that? After a time, they said it was going to be bigger than that, but that it was confined to the financial system; moreover, it was a liquidity problem and it could be solved. After a further period of time, they admitted that it was not a liquidity problem; it was actually a solvency problem, but this too could be resolved. A year into the crisis, as the economy was starting to collapse worldwide, they realised it was not just a financial thing; it was a real thing. Fortunately, however, they said it was a demand-side problem and they could fix that as well. Even now, policy makers and others have not yet fully understood that it is not just a crisis with profound implications for demand; it has profound implications for supply as well.

The fact that most policy makers felt that a big crisis was effectively impossible implied that they did not forecast it. As they did not forecast it, they did not try to prevent it. Further, they made no preparations for handling it when it did happen. Finally, when the crisis did hit, I would contend that policy makers did not handle it as well as they should have done. For example, things were treated as liquidity problems when they should have been treated as solvency problems right from the start. We have a deep-seated economic and financial problem, and it is not at all clear that the reaction to it has been optimal.

> *"It ain't the things that you do not know that getcha; it is the things that you know for sure what ain't so."*
>
> **Mark Twain**

The Development of the Crisis

You will remember that this thing started in the summer of 2007. The interbank market seized up; the mutuals started to withdraw from the SIVs (Structured Investment Vehicles); many of the obligations of off-balance sheet vehicles fell back into the banks; banking difficulties got progressively worse and then the real side took a big hit. At the same time, you may remember that, as recently as the summer of 2008, we were really worried about inflation even as real demand and output were beginning to collapse around us. Now, of course, in light of that collapse, we are more worried about deflation.

We have had a recovery in the real economy since then. Yet the underlying truth is that an awful lot of people continue to be enormously uncertain about what is going to happen. I would have to include myself among that group of enormously uncertain people.

The Causes of the Crisis

There are two schools of thought about what underlies our difficulties. The first one is what I call the comforting 'school of what is different'. This school points to all the things that were new in this crisis – rating agencies, SIVs, conduits, the originate-to-distribute model, CDOs (collateralised debt obligations) and CDO2s. A lot of people would claim that these played a material role in what has happened and what is still unfolding, and I do not deny that. It is sort of comforting, though, to be able to put the blame on new things, because it allows everyone to say that they could not possibly (or even reasonably) have been expected to see all the material implications of this brand new stuff.

There is a second school of thought, which I think is less comforting. I call it the 'school of what is the same'. Ken Rogoff and Carmen Reinhart have documented this very well in a recent book, *Eight Centuries of Financial Folly*. To be concise, we had a huge recession in 1825, another one in 1873 and again in 1929. We had the South East Asian crisis and the Japanese crisis; we had so many of these things, and they all look the same. They start off when something new happens, such as some new technology, and the optimism begins. People go the banks and take out loans, because the opportunity to make money is there. They get the money and spend it, so the economy booms and some of it goes into asset prices, which in turn provide more and more collateral. There is more lending and more optimism; the rational optimism gradually turns into irrational optimism and then the whole thing collapses.

Why is that less comforting? Because this big cycle was essentially the same as all the earlier ones and you missed it.

It is true of course that these big booms can manifest themselves in a number of different ways. The implications of unusually low interest rates, unusually rapid credit growth, speculation and leverage, which is the essence of the 'school of what is the same', can potentially lead to rising inflation. You do not have to be a 'monetarist' to believe that, if you have a long period of very rapid credit expansion and very low interest rates, it will manifest itself in inflation. That is entirely possible. Recall that we were worried about inflation as recently as the summer of 2008, and we may have occasion to be worried about it again before too long.

That is only one possible manifestation of the excessive growth of credit. There is another possibility as well. You do not have to be Fredrick von Hayek to believe that this sort of credit expansion can lead to all sorts of

imbalances in the economy, imbalances which can quietly creep up on you but do great damage in the end. What sort of imbalances are these? I am talking about asset prices that got too high; banks that got too exposed; household saving rates in the United States that got down to zero and even less in many other English-speaking countries; global trade imbalances; and investment rates of 50% of GDP in China. These are all unprecedented and completely unsustainable. And if they are unsustainable, they will end. And that is precisely what we are seeing.

At the end of the upward phase of the credit cycle, you get to a tipping point. Hyman Minsky used to talk about this tipping point – the morning when a banker, who has been giving credit for a long period of time to all sorts of people who should not have received it in the first place, gets up and looks at himself in the mirror and says: "Oh my God, what have I done?" If the banker is seriously worried about his own solvency, and in his heart of hearts he truly believes he has been pretty well behaved relative to everybody else, you can imagine how worried he is going to become about the solvency of his counterparties. That moment, when the music and the dancing stop, is now referred to as a Minsky moment.

My point is that the banking problem initially looks like a liquidity problem, but it is actually a solvency problem. That reality is what is lurking behind all the economic and financial difficulties we still have to face.

My point is that the banking problem initially looks like a liquidity problem, but it is actually a solvency problem. That reality is what is lurking behind all the economic and financial difficulties we still have to face.

The Policy Response

We have had this deep downturn and financial seizure, and we have responded to it vigorously. I have been in this business for more than 40 years and I would say that the policy response has been unprecedented. Yet, it is also a bit worrisome, because I think that virtually everything that has been done thus far – monetary, fiscal and structural – has short-term limitations as well as longer-term side effects that could in the end prove rather unpleasant.

Monetary Policy and its Limitations

This is what I call the 'lean versus clean' debate. You may be aware that Chairman Greenspan and Chairman Bernanke have repeatedly asserted that it is impossible to 'lean' against a credit bubble; they say the only thing you can do is 'clean up' afterwards.

The first argument they use is that econometric models all say that you can clean up afterwards. Virtually everybody sensible today is re-evaluating the models they use, because most of them are based on assumptions that are patently unrealistic.

A second argument is that 'cleaning up' has always worked in the past. They did it in response to actual or incipient downturns in 1987, 1991, 1997 and 2001-2003, and it worked every time. The problem with that argument is that, every time they turned to cheap money in the past, the implication of the lower interest rates was to induce people to spend yet more money that they did not have and to increase their debt levels. In the successive cycles, you can see the effectiveness of monetary policy was increasingly less. Logically, you could say easy money will eventually not work at all and I think that is pretty close to where we are at the moment.

Another argument they use is that, in the US in the 1930s and in Japan in the 1990s, the problem was errors in policy after the recession struck. I think the Americans feel this very strongly and that helps to give us some insights about how they are likely to set policy in the future. I personally do not feel that the 1930s was a by-product of the Federal Reserve raising interest rates by 1% in 1931; nor do I believe that 20 years of stagnation in Japan is a by-product of the Japanese having lowered interest rates too slowly in 1991. It is simply incredible that 20 years of slow growth in Japan could be the by-product of a policy mistake of that nature. I think it comes out of all of the stuff I described earlier, which is the imbalances, structural problems and the unwillingness to face up to those problems. I think the bottom line is that traditional monetary policy is not really going to work.

Of course, this still leaves room for non-traditional monetary policy, like quantitative easing. The Japanese tried it quite vigorously in the 1990s and it did not seem to do them a very great deal of good.

The Longer-Term Side Effects of Monetary Policy

What we are doing now could potentially lead to further bubbles. The monetary easing in 1987 led to the property bubble of the late 1980s and early 1990s. I think you could make a case that the easing in the early 1990s led to the Asian crisis and that the easing of interest rates after the Asian crisis led to the problems of LTCM (Long-Term Capital Management). It is a story of one bubble leading to another, and judging by what is now going on in the emerging market economies, the story may be ongoing.

If you have very low interest rates for a very long period of time, you end up with lower saving rates, which is not good for growth. You wind up with zombie companies and zombie banks, which is not good for growth. You subsidise debtors at the expense of creditors, which is not good for growth. There are a lot of downsides to easy money.

Lastly, of course, there is this business about quantitative easing and higher inflation. I think there are two risks. One is that, at a certain point, inflationary expectations are going to come unstuck. I do not think it is likely, but it is possible. We have seen this process at work many times in Latin America. The fact that you have lots of unused resources does not preclude high inflation once people's inflationary expectations start to come unstuck.

The second risk of quantitative easing is simple policy error. At the moment, with all of these balance sheet effects, nobody really knows where demand is going. Moreover, with all of the changes that are taking place on the supply side, nobody really knows what 'potential' growth is either. On top of that, you have to add in the fact that, at some point, we will have to rein in past quantitative easing. However, what the effect of this will be is hard to determine since everything we are doing in this domain is essentially unprecedented.

Fiscal Policy and its Limitations

Do you remember that US fiscal policy was to be "timely, temporary and targeted"? Where that came from? Timely – we did not use fiscal policy in a countercyclical way for 20 years because people believed it was impossible to get the timeliness right. Now, all of a sudden, we can do it. Temporary – when I was a graduate student, I was taught that fiscal policy/fiscal expansion had to be permanent to get people to think they were permanently wealthier. Now, all of a sudden, it is temporary that works, not permanent. And targeted? To whom or to what has never been made clear.

The principal limitation of fiscal policy is, of course, that it can engender negative financial market reactions. You are seeing it play out on the front page of the *Financial Times* every day. I am thinking particularly about Greece, Ireland and Hungary today, but similar financial market worries could eventually affect much larger countries.

Lastly, there are fears of currency crises. You cannot have a currency crisis in Greece, but I guess you can have a currency crisis by proxy in the Euro. You can have a currency crisis in Hungary and this has been a source of real concern. You could have currency crises in other currencies as well, if people start to worry enough; if people start to believe that the fiscal house is a house of disorder.

The Longer-Term Side Effects of Fiscal Policy

When we think about fiscal expansion and traditional, countercyclical policy, we have to remember that in the advanced market economy countries, our demographic starting point is almost universally bad. Looking at unfunded pension liabilities, both from the public and private sector sides, we already have a real problem in terms of affordability. Now, of course, still more debt is being piled on and I think that could be a real problem as we start to look at interest rates and interest rate differentials going forward.

Structural Policy

If one of our big problems is excessive debt, one answer to the problem is to write it off. The difficulty of doing that today is that there are millions of people in the United States whose mortgages are underwater. It is enormously difficult just to put in place the underlying infrastructure to manage something like that. It is not like the old days when there was a sovereign debt crisis. Bill Rhodes of Citicorp would go into a room with ten of the most senior bankers in the world and sort out the problem. Today, how big a room would you need? Moreover, many of these troubled mortgages are encumbered by second mortgages or wrapped up in CDOs, which legally proscribe changing the conditions of the underlying securities. The legal aspects of debt forgiveness are now absolutely daunting. Finally, even supposing we could write off all this debt, the first thing you would worry about would be moral hazard, to say nothing of the political difficulties associated with bailing out the profligate.

We have in fact done a great deal to help the financial sector cope with bad assets and prospective insolvency. Is it enough? The honest truth is nobody really knows. People are still backing away from the valuation of toxic assets, and a further economic slowdown could bring more bad loans in turn. Could we do more? It is highly unlikely. The central point about everything we have done is that the banks now are bigger, more complex and more interrelated than they were before.

So, we have done all of this stuff to support the financial system and it has helped avoid the worst, but it has also left us in a situation where we have some significant problems. If you look at the big banks that still remain, some of them are healthy and some are not. If natural selection is anything to go by, the healthy ones are going to try to eat the unhealthy ones, and then the 'too big' problems are going to be even bigger.

We have in fact done a great deal to help the financial sector cope with bad assets and prospective insolvency. Is it enough?

Finally, there is this whole business of measures to support industrial sectors. Governments have used many measures to support jobs directly. In particular, we have had extensive subsidies to support short-time working, which seems to have been successful in keeping down rates of unemployment, especially in Europe. Yet the countries that have used short-time working the most are in the main those countries that already have huge trade surpluses. These countries are protecting jobs that, in the longer run, are jobs that have to disappear anyway.

Given everything I have said about the short-term and long-term effects of these different policies, who really knows what will happen. It should not be at all surprising that the G20 is having trouble getting its act together. Given all these uncertainties, it is perfectly normal for thoughtful people to come to different conclusions about what is desirable. It is also perfectly normal for some people to be more worried about the short-term fix, while others are more concerned about getting it right over the long term.

The Outlook

Three years into the downturn, all the initial imbalances I talked about are still there and that worries me. It leads me to the conclusion that some kind of double dip is more likely than not.

That having been said, it is also possible that the current recovery will continue. I think there are two ways it could continue. One way is a natural and sustainable recovery, where we work off these imbalances in a gentle way. In the States, for example, the saving rate has been higher than anticipated and consumer debt is being written off faster than people thought it would be. It may be that we will get a sustainable recovery in that way. It will be a long period of very slow growth, but it is possible.

...is there a place for gold? It would seem to me, in a world of more common 'tail events', the answer has to be yes.

Another possibility is that we will get another bubble-driven recovery. We may, in fact, already be seeing this in the emerging market economies. A good chunk of what appears to be robust demand may be due to relatively low interest rates and exchange rates. While in a longer-term sense, such demand might prove unsustainable, it might be enough to keep things going for quite a long period of time. In the advanced market economies, that is precisely what happened

from 2003 to 2007. Growth was policy-driven, and unsustainable, but it went on for a long time. It is not impossible it could happen again, although I do not think it is likely.

Lastly, we have deflation, which I think is the more likely outcome. However, it is not impossible that inflationary expectations will come unstuck and that money will start heading for the exits or at least start to head for real things like gold. In this case, we could find ourselves in a significantly more inflationary environment.

Policy Going Forward

If the green shoots continue, I think policies will tighten. Fiscal policy will probably move more rapidly than monetary policy, which will exit only very cautiously. Ben Bernanke is a keen student of the Great Depression, and from everything I have seen and read, he truly believes that policy mistakes caused the Great Depression. He has no intention of going down in history as making the same policy mistake twice. I think you will find monetary policy will be very easy in that environment.

If green shoots do not continue, monetary policy will not tighten and that will simply make things worse over time. Even if there was moderate fiscal tightening in such circumstances, there are such significant problems that we could see sovereign rates go up in a number of countries, with currency problems thrown in for good measure.

In this environment of enormous uncertainty, is there a place for gold? It would seem to me, in a world of more common 'tail events', the answer has to be yes. But, of course, the much harder question is what that role might be? I would have to say that is for you rather than me to decide. ■

William R White *is from Kenora, Ontario, and now lives and works in Basel, Switzerland. He is currently Chairman of the Economic and Development Review Committee, which provides policy recommendations to members and aspiring members of the OECD, in Paris. The views in this text are the author's own and do not necessarily reflect those of the OECD.*

He is a member of the Issing Committee, the Advisory Board of the Globalisation and Monetary Institute at the Federal Reserve Bank of Dallas, as well as that of the Institute for New Economic Thinking, recently established with the support of George Soros.

A career central banker, Mr White held the position of Chief Economist at the Bank for International Settlements (BIS) in Basel for 14 years. He publicly predicted the current financial crisis, well before the subprime meltdown, noting that the long-standing deterioration in credit standards had global implications that would extend far beyond the US mortgage market. At the 2003 conference sponsored by the Federal Reserve Bank of Kansas City in Jackson Hole, he famously challenged the Federal Reserve view that central bankers cannot "lean" against the build up of dangerous credit and asset price bubbles, but that they can easily "clean" up afterward.

London Precious Metals Clearing Limited

has announced that as ***Friday 29th April, 2011,*** *has been declared an additional UK public holiday for the Royal Wedding, loco London precious metal transactions previously concluded for settlement on that date will now instead be settled on*

Tuesday 3rd May, 2011.

London Precious Metals Clearing Limited has also announced that the cut-off time for the acceptance of transfer instructions on ***Friday 23rd December,*** *and* ***Friday 30th December, 2011,*** *will be* ***14:00 G.M.T.***

Gold...

A fully integrated precious metal management company, Rand Refinery is the world's largest single-site refining and smelting complex, with a reputation for quality, reliability and integrity built up over eight decades.

RAND REFINERY LTD. SOUTH AFRICA

Based in Germiston, in Gauteng, South Africa we are conveniently placed for access to Johannesburg's OR Tambo International Airport.

We are committed to the highest standards in all aspects of our business:
- LBMA accreditation
- LBMA referee status
- Dubai Metals and Commodities Centre accreditation
- OHSAS18001 (health and safety)
- ISO14001 (environmental)
- ISO9001 (quality)

We offer:
- The latest technology in both refining and smelting
- a knowledgeable team, steeped in the business
- analytical services
- stringent security
- a comprehensive vault, clearing and air forwarding service
- fabrication of a range of value-added products

Tel +27 (0) 11 418-9000 Fax +27 (0) 11 418-9231 gold@gold.co.za www.randrefinery.com

LBMA Precious M
Conference 2010

By Ruth Crowell, Commercial Director, LBMA

In 2009, delegates predicted the price would be US

US $1,297.00. This year LBMA delegates predicted

of the next LBMA Conference. Let's hope they were

The 2010 LBMA Precious Metals Conference was held in Berlin, Germany during the period 26th–28th September. Despite pouring rain and the excitement of the Berlin marathon, the Conference attracted a total of 469 delegates, from over 35 countries, the largest attendance of any LBMA Conference.

The Conference opened with the Welcome Reception, sponsored by the International Platinum Group Metals Association (IPA), which was held at the Hotel Adlon. After the first evening of networking, the Conference speeches began with the Opening Session featuring keynote speaker William White, Chairman of the OECD Economic and Development Review Committee, as well as George Magnus, Senior Economic Adviser from UBS. Wolfgang Wrzesniok-Rossbach of Heraeus won the prize for Best Speaker for his speech on Physical Investment; followed closely by keynote speaker William White (these speeches are reproduced on pages 16 and 10 respectively).

etals
Review

…$1,181 and were US $116 off the actual price of …that the gold price will be US $1,450 by the time …sufficiently bullish this time round.

Wolfgang Wrzesniok-Rossbach was also a part of the Conference's most popular session, Response from the Traditional Markets, which was moderated by Albert Cheng of the World Gold Council. Philip Klapwijk of GFMS reported on the Official Sector and Sunil Kashyap spoke on Asian Jewellery Demand. The Keynote session and the Presidential Style Debate also proved very popular.

The Conference Dinner celebrated Berlin's 'Golden Twenties' and was held at the Charlottenburg Palace. Prior to arriving at the palace, delegates enjoyed networking during their cruise on the River Spree sponsored by the Fachvereingung Edelmetalle.

Our congratulations and thanks to all the speakers and sponsors involved in the Conference.

The next LBMA Precious Metals Conference will take place in Montreal, Canada during the period 18th–20th September 2011. Hope to see you there!

The Physical Side of the Precious Metals Investment Boom

By Wolfgang Wrzesniok-Rossbach, Head of Sales and Marketing, Heraeus Metallhandelsgesellschaft mbH

The following is an edited version of a speech made at the LBMA Precious Metals Conference in Berlin on 27th September, 2010.

Preamble

I will start with a bit of history. Do not worry, I am not going to go back 2,600 years to King Croesus. I will speak about the typical investor and what is driving him. I will talk a little bit about the products – there are some quite heavy ones around – about distribution and also product innovation.

A Small History of Physical Investment Products

Until 1914, there was obviously no need for additional investment products. The gold standard was in place and you could exchange your bill, if you had one, for a gold coin. Modern investment bars were first made in the period prior to the Second World War and the first minted bars came onto the market in 1952, produced by Argor, which is Argor-Heraeus today, based in Chiasso. That was followed by the invention of the gold monetary coin or, as we call it today, the bullion coin, which started its life in the 1960s with the Krugerrand, which became a mass product in the 1970s after the gold market was liberalised.

You cannot speak about physical investment history without looking at stocks. In 1950, a total of 10,900 tonnes of gold were owned by private investors, 65% in Europe, 25% in the US and the rest in other countries around the globe. At that time, most of the holdings were in the form of coins. Fifty years later, in 2000, private investor stocks had risen to 22,000 tonnes, with the composition changed to 75% in the form of bars and only a quarter left in the form of coins. In the year 2000, the French, who bought large quantities of gold in the 1950s and 1960s, and who had been among the first to buy kilo bars in the 1930s, were the biggest holders of gold, owning around 3,600 tonnes. Indeed, the majority is still held by families in France. The French were followed by the US, by Japanese gold holders, and then Swiss and German investors.

A Look at the Numbers

So much for history, what is the situation today? Has everything changed or are the traditional holders of gold in the market today still those who were there in the past? Well, some countries have disappeared from the top 10 list, but others are still there, such as the traditional market of Germany. You may have heard that Germany was the biggest market for small investment bars in 2009 and that will probably be true for 2010. Why that is the case I will tell you in a couple of minutes. Germany now consumes between 115 and 135 tonnes of small bars a year. It is followed by countries such as Switzerland, the US, India, China, Southeast Asia and a number of other countries obviously much smaller in size. It is important to mention though that these numbers are consumption numbers and not production ones, and if you look at the total numbers, between 260 and 570 tonnes have been bought in the last couple of years. The production of the small investment bars though is still dominated by the various refineries in Switzerland.

The situation looks different when we come to the international bullion coin market. Coin producers are spread all over the world and no country dominates the global market. In 2009 and probably again in 2010, the largest quantity of bullion coins came from the US, in the form of the eagle and the buffalo. They were followed by the Canadian maple leaf and by other coins, for example, from Austria, Turkey, obviously the Krugerrand, which is the most traditional of these, and then Australia. There are a large number of other producers around the world, but they all produce small quantities of coins.

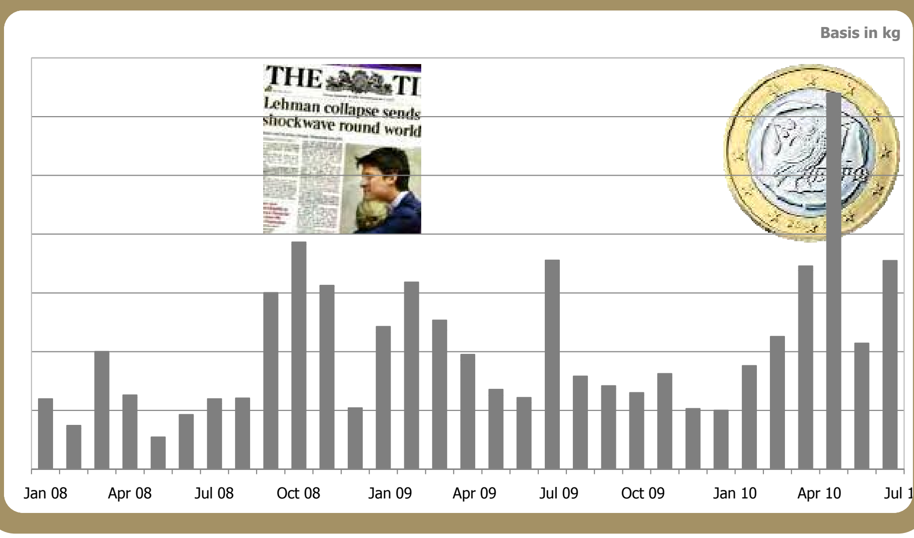
Finally, let us have a look at the total numbers. They are a bit smaller than those for the bars, but the estimate for this year is between 135 and 229 tonnes, and so they are still quite large and play a substantial role in the international gold market.

Investors and Their Motives

Why are people buying so much gold? More than US$70 billion of physical gold in the form of coins, bars and so-called imitation coins have been bought in the last four years alone. Although demand was distributed widely over the globe, a handful of countries have dominated the buying.

Let us have a look first at Germany, where there is a great desire for security. Germans are probably the most over-insured people in the world and so it fits that they started buying a lot of gold in the 1970s when there was high inflation, and they did the same in 2008 and again this year. The new buying started with Lehman Brothers, after a number of Germans lost double-digit millions of Euros in certificates that were issued by Lehman's.

Figure 1: Heraeus Investment Bar Sales in Germany



Amongst these were gold certificates. Hence, buyers lost money on something that was seen as a secure investment in a very secure underlying asset. After that experience, the German investors turned physical, and you will see in a moment what the impact was for a company like Heraeus.

In 2010, news spread across Europe that there were more and more doubts about the future of the Euro. It did not turn out to be that bad, luckily, but Germans nonetheless started buying gold again, and they bought large amounts. Suddenly, all Germans seemed to remember personally 1924, when there was a 100 trillion Mark bank note and so they bought gold again.

If this is what has been happening in Germany, why is Switzerland also buying so much gold? There has been no war in the last 200 years, no inflation apart from perhaps housing, and of course no potentially endangered Euro. Is there a reason to buy gold in Switzerland? There are probably two explanations here for that and one is the neighbours: a large amount of the Swiss buying came from Germany and perhaps ended up in Swiss vaults, which were seen as even more secure. The second, more local reason is that gold is seen by Swiss people as a means of portfolio diversification, so they were locking away some of the gold themselves.

Heraeus Investment Bar Sales in Germany

On figure 1, you can see, for example, how the sale of Heraeus bars in Germany has developed over time. You can clearly see that there were two peaks: in 2008, right after the Lehman crisis and then again this year after the problems in Greece arose and bar sales exploded. What type of bars I will speak about in a minute.

The Asian market is changing; investment is not only in jewellery any more, but also in banks and buildings. Gold is seen in Asia as a means of portfolio diversification.

I should mention that one of the most important gold consumer markets now is Vietnam. Homes and land, for example, are still evaluated in gold and traded in gold, which is why Vietnam is still one of the major markets for physical gold.

Finally, there is Thailand, the fifth-largest market in the second quarter of 2010. Why is so much gold sold in Thailand? Here, we have probably the same thing as the relationship between the Swiss and the German markets, in that much of the gold bought in Thailand ultimately finds its way to Vietnam.

In Turkey, gold is a very popular gift, traditionally for weddings and other celebrations. There is no tradition of buying gold bars in Turkey. Prior to 1989, individuals were not allowed to buy gold bars and this still is the case for investment in gold for gifts. However, importantly, from 2000 until 2008, Turkey was the biggest market in the world for gold coins. The two most popular gold coins are produced locally by the Turkish Mint.

Last but not least, the United States. I am not going to say that 15.2% of all Americans are of German ancestry and that typical German angst is driving gold demand, but some of the reasons might be the same there. There is potential inflation, there is fear of dollar devaluation and that leads to physical demand, not only in the form of ETFs. Again, it is a means of portfolio diversification.

What perhaps drives Americans even more than anybody else in the world is what must have been a traumatic experience for the older generation: private gold possession was forbidden from 1933 until 1975. Today, the US invests in the form of coins; it is not a bar market. The market in the US is mostly in the hands of coin shops and internet dealers, and is not so much a bank-driven market as it is, for example, in Germany.

The Products

What products are the most popular in the international markets? Let us start with minted gold bars. In some markets, they are also called 'ingots' or 'wafers', and they are produced by cutting cast bars that have been rolled to a uniform thickness and the markings are then applied with a minting press. Usually, those bars are rectangular but there are a variety of other shapes and they are of very different sizes, ranging from 1/100th of an ounce to 1kg, but the most usual ones, at least in Germany and in surrounding areas, range from 5g to 100g.

At first glimpse, it looks like the precious metal bar market is easy to understand – it comprises minted bars. However, if you look at it more closely, there are cast bars and if you look at it closer still, you discover that there are 55 different bar types. Some bars are pretty exotic, such as boat, doughnut and fillet bars. In Western countries, the usual sizes for the classic cast bars range from 100g to 1kg. The second group of bars which is popular are the tael bars. Their market was Greater China and still is Vietnam. Tola bars were once popular in India, but their importance has diminished since 2003, when a new import tax was introduced.

Bullion coins are available from 1/20th of an ounce to 1kg and are made not only out of gold and silver, but also out of other precious metals, in many different sizes. 230 tonnes of gold and 2,450 tonnes of silver were minted in 2009. If you compare these numbers to the annual off-take in ETFs, there is no reason to give up on the physical investment products. That was the highest number since 1980, with the exception of 1986 when Japan minted a high number of gold coins. Additionally, in the last two years, gold sales were repeatedly restricted by limited production capacities. We would have sold more if had been possible to produce more of those coins and the same is true for bars.

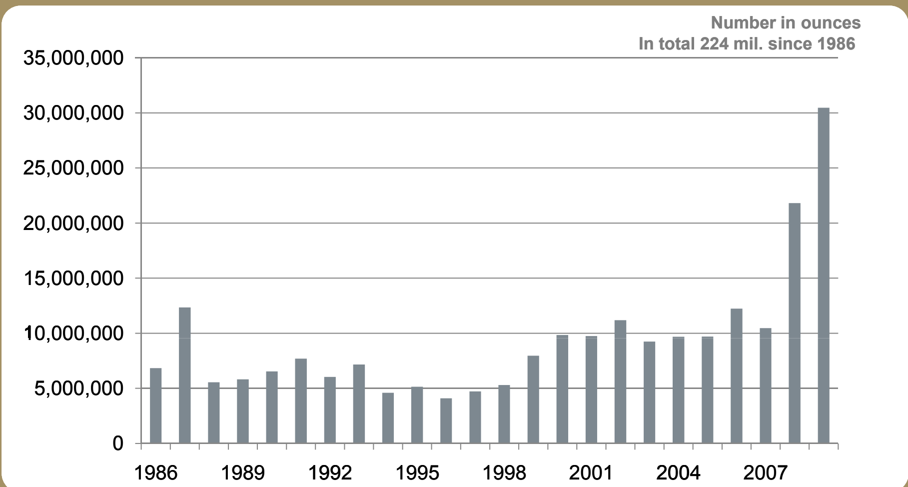
Silver Eagle Sales

Figure 2 shows silver eagle sales over the last 20 years. The most important things to notice are the two bars on the right-hand side, showing how the business exploded in the last two years after the Lehman crisis started.

Other Investment Coins

There are other classic investment coins, for example Austrian Dukaten, Swiss Vreneli, German Goldmarks and British Sovereigns. They all remain traded products in the investment market. Of course, the very rare ones have a numismatic value on top of the bullion. There are also historic bullion silver coins. You can see here the Maria Theresial Thaler, which is the most common bullion coin in the world. Some 389 million of these coins were minted from 1741 to the year 2000.

Figure 2: Silver Eagle Sales *(source: Wikipedia)*



Better than a bank statement?

Wolfgang Wrzesniok-Rossbach

is in charge of the client relationship management and research activities of the Heraeus precious metals He joined the precious metals and technology group in 2005 after working in banking for 21 years.

Wolfgang started his career in 1984 with Dresdner Bank and after working in Frankfurt, Singapore and Sydney as a precious metals and derivatives trader, he became head of its precious metals and commodities desk in Frankfurt.

Another example is the former circulation silver coins in the US, which are still traded in the form of so-called 'silver bags' in the US. Last, and in this case least important, are the commemorative coins which are minted in many countries. They are often legal tender, but they lack one important characteristic of a classic bullion coin and that is the unlimited number of pieces minted. One example is the €100 coin.

Product Innovation – an Unusual Expression in an Old Business

What is the next step? Well, recently we have seen a great deal of innovation in the investment banking area, but there have also been innovations in the physical market in the last few years. One is the silver coin bar – whoever has heard of it? However, it has been very popular here in Germany. Since it is a bar with a face value – in this case, 30 Cook Island Dollars – it is treated as a coin. The European Commission likes to regulate a lot of things, but apparently, it is nowhere said that a coin has to be round. Also, in Germany, for a silver legal tender coin, only 7% and not 19% VAT applies. The Germans like a product that saves them 12% of VAT.

There are also smaller coins, which perhaps make gold more affordable. The 0.5g 'Mini-Roo' is a good example. There may be additional products, for example, made out of rhodium. Is it worth buying rhodium? I leave that decision to you.

After small coins, what about bigger coins? The 1kg silver coin and even a 10kg silver coin have been extremely popular. As far as product innovation is concerned, a golden jigsaw might not be the solution, but if somebody wants it, it is available.

As you will know, it is a long journey from the furnace to the vault. There are now direct sales by mints and refineries, banks are in the business, and so are precious metal dealers. You have internet-based shops of precious metals dealers, outlets even in department stores – we all know the Harrods story – and there are now gold vending machines, like the one we can see in the Adlon at this Conference.

Has physical precious metal investment a future? Others have outlined the problems, so I will not repeat them. How far can this go in the end? Well, global wealth stands at €82 trillion. If people would only put 5% of that into the form of gold, it would be equal to 130,000 tonnes of gold, which is quite a large number. Today, physical holdings stand at roughly 30,000 tonnes. Add a few thousand tonnes in the form of ETFs and that leaves a lot of room for growth.

Do physical metals have a future? Would you like to have just an account statement or would you prefer something very shiny and also worth a lot, like some nice bars or coins? ■

Forecast 2010 Winners

Metal	2009 Average	1st Week Jan 2010	Average Forecast 2010	Actual 2010 Average	Winning Forecast	2010 Winning Analyst	Company
Gold	$972	$1,126	$1,199	$1,225	$1,225	Philip Aubertin	UBS
Silver	$14.67	$17.68	$19.02	$20.19	$20.20	Peter Fertig	QCR Quantitative Commodity Research Ltd
Platinum	$1,204	$1,531	$1,558	$1,610	$1,600	James Steel	HSBC
Palladium	$263.57	$422.50	$446.48	$526.38	$522.00	Ross Norman	TheBullionDesk

Forecast 2011 will be available on the LBMA website in January. If you would like a hard copy, please contact alchemist@lbma.org.uk.

The LBMA is delighted to congratulate the winning analysts in the 2010 precious metals *Forecast*. The aim of the LBMA *Forecast* is to predict the average, high and low for each metal as accurately as possible. The prediction closest to the average price and range at the end of the year wins. Many thanks to all the Forecast contributors for another excellent year. The average predictions for both gold and platinum were within 3% of the actual averages and the direction of the price move for all four metals was correctly forecast.

The LBMA is grateful to PAMP SA for its generous donation of prizes for the Forecast. The winners for gold and silver will each receive a 1oz PAMP gold bar and the winners for platinum and palladium will receive a 1oz PAMP platinum bar.

Regulation Update

By Ruth Crowell, Commercial Director, LBMA

OTC Markets - US & EU

The US Dodd-Frank Financial Reform Act has tasked the US Commodity Futures Trading Commission, the SEC and the Federal Reserve with writing the rules which will enforce the legislation passed on 21st July 2010.

The main sections of the Dodd-Frank act which apply to the bullion market involve the regulation of OTC swap markets, possible position limits and possible mandatory central counterparties (CCPs). The CFTC has been drafting rules on these sections and requesting public comments on these rules on its website (www.cftc.gov.uk).

The European Commission is also addressing OTC markets. The EC has proposed regulation in line with Dodd-Frank in September 2010. This is the proposed regulation of OTC derivatives, central counterparties and trade repositories. Most recently the EC has also requested a full review of MIFID in December 2010. Of particular interest is the proposed standardising of OTC derivatives on exchanges or trading platforms. The LBMA will be working with industry experts to determine how best to respond to these reforms.

Supply Chains - Conflict Gold

The LBMA has continued its work regarding US regulation concerning conflict minerals coming out of the Democratic Republic of Congo (DRC). Also as a result of the Dodd-Frank Act, the US now requires all companies reporting to the SEC to file periodic reports disclosing their use of 'conflict minerals' and 'DRC Conflict Minerals'. This reporting requirement applies only to SEC reporting companies; which are companies with more than US$10 million in assets and whose securities are held by more than 500 owners. Many different groups have been working on methods to track supply chains, including the UN Working Group of Experts on the DRC, OECD, ITRI (International Tin Research Institute) and the World Gold Council. The LBMA will continue to work with all these groups to ensure that the best possible scheme is produced and communicated to all members of the market.

The LBMA has also been discussing these regulation issues within the Management Committee and the Physical Committee. Comments from Members, Associates and GDL Refiners are welcomed. ■

The London Gold Market Fixing Limited

has announced that there will be no afternoon gold Fixings on

Friday 23rd December 2011

*and **Friday 30th December 2011**.*

Report from Abroad:

Events attended by the Chief Executive

By Stewart Murray, Chief Executive, LBMA

The Russian Bullion Seminar (Moscow, 18th November, 2010)

This one-day seminar attracted an audience of 120 delegates from more than 30 major companies and organisations, including a good number of LBMA members located in London, Zurich and Luxembourg. The event was organised primarily by Anton Dranitsyn of MDM Bank with support from Sergey Danov of the Russian Trading System (the two companies also being the main sponsors of the seminar). A number of other Russian banks and institutions provided a secondary level of sponsorship as did ICAP and MKS.

Stewart Murray opened the seminar by giving an update on what has been happening in the LBMA and the London Bullion Market. At the end of Stewart's speech, he presented Anton with the certificate marking MDM Bank's acceptance as an LBMA Associate. This was followed by Edel Tully of UBS who gave an excellent presentation on the outlook for gold (plus some comments on silver) and David Jollie of Mitsui who did the same for the PGMs. The final paper from London was by Mark Bruce of ICAP who reviewed the function of the EBS broking platform.

The remaining papers were from the Russian side. Sergey Danov gave a brief presentation on the Russian Trading System, followed by Eduard Rybkin of the Uralsib Financial Corporation on legislative and insurance problems relating to the provision of allocated and unallocated accounts in Russia. Valery Braiko (one of the stalwarts of the Russian gold industry) gave a presentation on many aspects of the Russian gold industry (including lots of statistics about production – in sharp contrast to the nearly zero statistical content of Russian papers that would have been delivered a couple a decades ago).

Sergei Kashuba also spoke on the Methods of Evaluating Risk in Russian Gold Mining. He based his talk on a recent Russian book which covered the topic of Economic Risks in Mining but which was a subject that he suggested was poorly understood in Russia. He also showed some interesting statistics about the way grades are falling in the main Russian gold-producing areas. The final paper was given by Mikhail Leskov of NBLgold. It described the different approaches to mining finance for different types of investors and at various stages of mine development and mine type. He also pointed out that there has been a consolidation in the Russian Gold Mining industry.

Fifth China Gold and Precious Metals Summit, Shanghai (2nd-3rd December, 2010)

This two-day event has become an established part of the precious metals conference circuit in recent years. There were about 250 participants with 20-30 from outside China. The main sponsors of the conference were the Shanghai Gold and Jewellery Trade Association, the Shanghai Gold Exchange and the China Gold Association. The simultaneous interpretation this year was of a very high standard which helped the foreign delegates to understand the Chinese language presentations, some of which were very interesting. Foreign speakers contributed half of the 20 papers included in the programme. But it was notable that the panel sessions held each afternoon consisted almost entirely of foreign speakers. The Chinese speakers addressed primarily local issues, including market structures and trading systems, production, the legal system and above all investment. Not surprisingly, the foreign speakers focused on the more global questions affecting the outlook for prices. There were two keynote speeches. The first was from an old friend of the LBMA, Shen Xiangrong, Chairman of the Shanghai Gold Exchange who spoke about the initiatives being taken to develop the Chinese gold market. The second, by the LBMA Chief Executive, described the OTC market focused on the loco London contracts for gold and silver. There was an interesting debate during one of the panel sessions about the role which OTC trading should play in the Chinese precious metals market. This is a debate which the LBMA looks to continue at its Chinese Bullion Market Forum in Shanghai on 26th May 2011.

Tokyo Good Delivery Seminar (7th December, 2010)

Unlike the events mentioned above, this short seminar was a purely LBMA event, organised to provide an update on Good Delivery developments to Japanese refiners. In spite of the steady growth in the number of Chinese refiners on the Good Delivery List in recent years, Japanese refiners remain the single largest group on the List. The seminar was well attended with only one of the listed refiners in Japan not being represented. ■

Assaying & Refining Seminar

Programme

Armourers Hall,

81 Coleman Street, London EC2R 5BJ

7th-8th March, 2011

Day One – Monday 7th March

Introductory Session

- Refining - the Role of the LBMA and the Good Delivery List
- Good Delivery List – Recent Developments and Rule Changes
- Proactive Monitoring – The role of the Referee
- Proactive Monitoring – Instructive Anonymous Case Histories

Reference Materials

- Reference Materials - An overview of their Production and Use
- Silver Analysis - Methods, Changes to ISO Standards and Anonymous Sample Analyses
- Challenges in Manufacturing Silver Reference Materials
- Experience in the use of the LBMA Reference Materials and possible extension of the project

Assaying

- Swiss Precious Metal Control Round Robin Analysis
- Achieving ISO17025 Accreditation
- Fire Assaying, a Technical Perspective
- Proficiency Testing of Fire Assay Laboratories – Proposed LBMA Scheme

Drinks Reception at Armourers Hall

Day Two – Tuesday 8th March

Weighing

- Mass Measurement – the fundamentals
- The approach to weighing in the London Bullion Market
- Workshop on the electronic weighing of gold

Physical Defects

- Physical Defects – A vault perspective
- The Origin and Avoidance of Physical Defects
- New Edition of the Visual Guide to Good Delivery Bar Defects

Panel Discussion and Concluding Remarks

This event is free of charge for LBMA Members, Associates and Good Delivery List Refiners. Representatives of other organisations may also participate but must pay a registration fee of £500 +VAT.

Contact Varsha.Peiris@lbma.org.uk for further information.

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Merrill Lynch was reclassified as an options Market Maker on 14th January, bringing the total number of LBMA Market Makers to eleven.

In order to qualify as an LBMA Market Maker, a company must offer two-way quotations in both gold and silver to the other Market Makers throughout the London business day. Reclassification is the responsibility of the LBMA Management Committee. In deciding on the issue of reclassification, the Committee takes account of the views of the other Market Makers on the performance of the candidate company during an approximately three-month probationary period.

The full list of Market Makers on the LBMA website shows in full the products (spot, forwards and options) provided by each company.

The full membership held by Commerzbank International SA Luxembourg was transferred to Commerzbank AG on 1st November 2010.

On 1st November, 2010, Clariden Leu of Switzerland and FideliTrade Inc of the United States were admitted as Associates. On 17th November, MDM Bank of Russia and TCA SpA of Italy were admitted as Associates.

On 1st January 2011, Coins N' Things (CNT) was admitted as an Associate.

Effective 31st December 2010, Fortis Bank and Korea Zinc resigned from the Membership.

The Associate status of Lakhoo Jewellery of Dubai was revoked on 31st December 2010 as the company was unable to provide renewed sponsorship. The LBMA requires Associates to renew their sponsorship every three years, either through the original sponsoring companies or, if the Associate is no longer doing business with them, with new sponsors.

These changes brought the membership list at 14th January 2011 to a total of 120 companies, an increase of three since the end of 2009. Interestingly, the number of Associates, at 56, now exceeds the number of Ordinary Members, at 50.

GOOD DELIVERY LIST

The silver refinery of Heraeus Limited, located in Fanling, Hong Kong, was added to the Silver List on 15th September, 2010.

2010 was a busy year for the processing of Good Delivery applications. A total of eight refiners were granted accreditation, four each for gold and silver. This brought the total numbers of the active lists to 60 for gold and 70 for silver. The increasing role of Asian refiners can be seen from the domiciles of the new entrants. China, Taiwan and Hong Kong accounted for five of them, the others coming from Saudi Arabia, Turkey and Kazakhstan.

COMMITTEES

Management

The Management Committee met three times in the final quarter of 2010. Two of these focused on future strategy, both in terms of the organisation of the precious metals market (including the way the LBMA is managed) and the external environment in which the market will be operating. The Committee has discussed the possibility of making changes in the way it is elected by the membership, rather than the present system of all its members having to step down and face re-election at each AGM. As the current system is enshrined in the LBMA's Articles, any such change would have to be approved by a General Meeting.

Regulation, in all its forms, is the key external issue that the Committee is now addressing. This encompasses the various aspects of conflict gold (see the article on page 19), banking supervision and the future regime for commodities trading. The Committee will shortly be discussing the possible setting up of a regulatory affairs committee which might provide advice to the Management Committee on such questions.

The Committee is currently developing terms of reference for the sub-committees to clarify their responsibilities and how they should interact with each other and the Management Committee.

Physical

The Committee met each month in the final quarter of last year. In spite of the substantial number of companies achieving GD accreditation last year, there are still many gold and silver refiners that are hoping to achieve GD status. The Committee has spent much time discussing the non-technical credentials of companies that have made serious enquiries. One aspect that was considered at length was the requirement for applicants for listing to have a tangible net worth equal to £10 million. This level has been unchanged since 1994 and the Committee is discussing whether it should be revised upwards. As far as existing Good Delivery refiners are concerned, any requirement for them to have an increased tangible net worth would be notified in advance to give them sufficient time to strengthen their balance sheets.

The Committee has noted the discussions with HMRC on a draft MOU on VAT prepared by a working party led by David Blaney of UBS. This is a complex subject and it will be some time yet before the MOU is finalised and distributed to Members. Other topics discussed have been the various initiatives around the subject of Conflict Gold and the use of the Good Delivery List by exchanges and funds.

Public Affairs

At its meeting in late November, the PAC approved the arrangements for the annual bullion market party. With the major 2010 events behind us, there was a short lull in the Committee's activities towards the end of the year. But this is now over. Discussions are now taking place about two important events in the coming year: the Bullion Market Forum in Shanghai on 26th May and the Annual Conference in Montreal during the period 18th–20th September.

Based on a recommendation from the PAC, the LBMA has agreed to provide a Bursary to Trinity College, Dublin to support a PhD student (provided that an appropriately qualified candidate with a suitable topic, relating to gold and/or silver, applies). The bursary will be worth €12,000 for EU candidates and may, subject to certain conditions, be continued after the first year. An increased amount will be available for non-EU students because they are subject to higher tuition fees. Ruth.Crowell@lbma.org.uk can provide more information if required.

Membership

The Committee met only once during the past quarter, when it discussed the arrangements for carrying out the three-yearly Associate Reviews. The new system introduced last year was considered to be working well. Under this, the onus is on the Associate under review to procure renewed letters of support from its original (or new) sponsors. The Committee's main activity is of course vetting applications for membership and making recommendations to the Management Committee. As is implied by the list of new Associates above, this work is carried out mainly by email.

Finance

The Committee met in October and November to review the three-year forecast for income and expenditure. It also recommended that its remit should be extended to encompass a more proactive responsibility for expenditure plans. This was subsequently approved by the

Management Committee and, as a result, the Finance Committee will in future meet every quarter to review the management accounts, the debtors position and the financial implications of any proposed changes in the activities or organisation of the LBMA.

Membership Subscriptions

The invoices for the 2011 subscriptions payable for Members and Associates, and for the annual maintenance fees for GD refiners, will be issued in January. Most companies pay these promptly, but in a number of cases, the invoices issued in January last year were still outstanding many months later. Chasing up these aged debts is very time-consuming and adds considerably to the Executive's workload. It is perhaps worth pointing out that the LBMA's Articles allow the revocation of the membership of any company whose annual subscription remains unpaid after three months. Rather than implementing such a draconian action, the Management Committee has approved a recommendation from the Membership and Finance Committees that subscriptions which remain unpaid after three months will be subject to a 20% surcharge and that if they remain unpaid after six months, the membership (of the LBMA or the Good Delivery List) will be revoked. The Executive will of course make every effort to ensure that invoices, statements and reminders do reach the appropriate representatives of the companies concerned.

Data Commercialisation

The LBMA Market Makers' Gold Forward Curve will go live on Thomson Reuters, Bloomberg and 17 other data vendors in ten different countries on 17th January. The LBMA's eight forward Market Makers contribute their forward prices for gold at the close of business each day, consisting of 17 data points covering the period from one week to ten years forward. The LME will then collate and distribute the gold forward curve to data vendors on behalf of the LBMA. The Executive is now working with the Market Makers to produce similar forward curves for silver, options and gold IRSs.

Use of Good Delivery List

During recent months, the LBMA has held discussions with the world's leading commodity exchanges concerning the way they use the Good Delivery List and whether they would be willing to support the LBMA's work in maintaining the List. A sub-committee has been set up in the LBMA to guide the resulting negotiations. This will be chaired by the LBMA Vice Chairman, David Gornall, who also sits on the Physical Committee as the Management Committee representative.

Referees

The LBMA Referees met in Berlin immediately following the Conference and again via conference call in mid-December. The plans for the Assaying and Refining Seminar were the main topic discussed. See the announcement on page 21 for further details about the Seminar.

Other important questions addressed were:

- the testing work carried out by the Referees in relation to samples and bars provided by refiners being proactively monitored and applicants for GD accreditation;
- the differences between the standards for 999.9 gold in a number of countries;
- the possible extension of the Reference Materials project;
- the proposed introduction of a proficiency testing scheme to allow GD gold refiners to compare their fire assaying accuracy with their peers.

Chief Executive Presentations

The Chief Executive was the keynote speaker at two recent industry events. The first was the Russian Bullion Seminar held in Moscow on 18th November. The second one was the 5th Gold and Precious Metals Summit held in Shanghai on 2nd–3rd December. The Chief Executive also gave a presentation to a group of Japanese Good Delivery refiners in Tokyo at an LBMA Good Delivery

Clariden Leu
SWISS WEALTH MANAGEMENT SINCE 1755

Clariden Leu is proud to be a new Associate of
The London Bullion Market Association (LBMA)

Seminar held in Tokyo on 7th December. See the article on page 20 for more details of these events.

Visitors

Recent visitors to the LBMA have included delegations from the Shanghai Futures Exchange, the Japan Mint, the Korea Exchange, the Korea Securities Depositary and the City of London's China Offices.

REACH

The registration deadline for EU companies which import or refine more than 1,000 tonnes of metal per year was 30th November, 2010. There are no EU companies producing or importing this quantity of gold so this deadline only applied to silver. Companies which needed to register were able to purchase a Letter of Access from the Brussels-based Precious Metals Consortium, thus allowing them to include a reference in their registration to the Consortium's silver dossier, which had been submitted to the REACH authorities by the lead registrant, Aurubis, in mid November.

The next relevant registration deadline is 31st May, 2013 which applies to companies with a tonnage band of 100-1,000 tonnes. For the next lower tonnage band, 1-100 tonnes, the deadline is 31st May, 2018.

EU Classification, Labelling and Packaging (CLP) Regulation

This is a separate matter from the registration under REACH and one where the LBMA Executive has not previously been involved. It relates to the need for companies to notify the European Chemicals Agency of the classification of each substance that it places on the EEA market. This should have been done by 3rd January, 2011, but it appears that many companies were unaware of this. For companies that previously pre-registered under REACH, this can be done through their REACH-IT accounts. The CLP regulation is described in the Directive EC 1272/2008. More information on CLP can be found on ECHA's website: echa.europa.eu. It should be noted that CLP applies to all substances, no matter what tonnage a company manufactures or imports. So even those companies which did not pre-register, or have no obligations under REACH, may need to create a REACH-IT account and submit a CLP notification.

The Precious Metals Consortium has prepared guidance on the classifications it has developed for precious metal substances (in some cases, in different forms, such as powder). The LBMA Executive can provide copies of this to Members who need to notify ECHA about substances that they place on the market. Most of the classified substances (eg compounds containing precious metals) are not manufactured or imported by LBMA members. In principle, massive precious metals, ie bullion bars, are not currently classified in terms of risks to health or the environment, so a company notifying ECHA about these products needs to select 'not classified' as the classification.

STAFF

We are delighted to welcome a new member of staff, who joined us on 1st December, 2010. Rebecca Adamson has been employed in the past as a consultant on a number of projects related to the Good Delivery List. Rebecca acts as the LBMA's Good Delivery Administrator, where her primary duties include processing applications for GD accreditation and arranging the three-yearly cycle of proactive monitoring for current members of the List. ■

DIARY OF EVENTS

FEBRUARY

7-10
Mining Indaba 2011
Cape Town
T: +1 859 746 5700
info@miningindaba.com
www.miningindaba.com

24
LBMA Annual Party
London
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

MARCH

6-9
PDAC 2011
Toronto
T: +1 416 362 1969 ext. 1
convention@pdac.ca

7-8
Fourth LBMA Assaying and Refining Seminar
London
Full programme on page 21
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

APRIL

7-8
World Silver Survey 2011 Launch
New York and Mexico
T: +44 (0)20 7478 1777
info@gfms.co.uk
www.gfms.co.uk

7-8
Gold Survey 2011 Launch
London, Toronto and Johannesburg
T: +44 (0)20 7478 1777
info@gfms.co.uk
www.gfms.co.uk

MAY

17
LPPM Seminar
London
www.lppm.org.uk

18
LPPM Dinner
London
www.lppm.org.uk

26
LBMA Bullion Market Forum
Shanghai
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

JUNE

11-14
IPMI 35th Annual Conference
San Antonio
T: +1 850 476-1156
mail@ipmi.org
www.ipmi.org

22
LBMA AGM
Armourers' Hall, London
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

SEPTEMBER

18-20
LBMA Precious Metals Conference 2011
Montreal
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

Editorial

Editorial Comment by Kevin Crisp, Chairman, LBMA

2010 was a year of great opportunities for many market participants in our business, allowing expansion and development of new business areas.

However, it was also a year of many challenges. On behalf of its Members, the LBMA is working hard to address these challenges for the collective good. Our committees and Executive have a heavy workload, and for those who contribute their time by sitting on committees, there has been a gruelling schedule of meetings and heavy agendas. To all of you from the market who sit on these committees, I offer you my sincere thanks for all that you do, especially when your day jobs are so full.

A great deal of effort went into Data Commercialisation in 2010. This has now completed its first stage, with the generation of a daily gold forward curve that will be distributed through an agreement with LME to market data vendors. In 2011, we will also bring a forward silver curve and then perhaps we can address other data sets. You will be aware that the LCH has recently launched its cleared forward product, adding to the CME's cleared forward product launched some while back. In part thanks to the dialogue involved in creating the curve from the LBMA's Market Makers, there has now been a review of Market Making criteria and at the same time a very encouraging resurgence of interest in Market Making itself. We have recently welcomed Credit Suisse to the list and there will be more additions soon I believe.

To deal with this heavy workload and an ever expanding list of other issues and activities undertaken on behalf of our Members, coupled with the healthy financial position of the LBMA, we have been able to substantially expand the Executive. We now have seven full-time staff and the resources to expand further if needed.

One of the core elements of the London market is the LBMA's Good Delivery List. The work of the Executive together with the Physical Committee in managing applications, as well as our very successful proactive monitoring system, is critical in maintaining market standards that are adopted around the world. We believe this system brings immense value to the global market and, as such, we continue to consider how best to further improve the system and how best to fund that process.

One area of activity taking up greater time is our policy of outreach and our desire to deliver the LBMA message around the globe to emergent markets. Our Chief Executive has done a tremendous job in representing the Association and in giving speeches and seminars at a range of events and conferences in Peru, Dubai, China, India, Russia and Japan this year.

Our major industry event though remains the LBMA Conference and we continue to stick firmly to the original concept of this being a conference organised by the market, for the market. This year's event, despite the inclement weather for three days in Berlin, was the most successful yet, with more than 500 attendees. Thanks again to the Executive and the Public Affairs Committee for their work in making it such a success. This year's conference will be in Montreal and after that, we will likely move the venue to Asia. The Executive is also planning an Assaying and Refining Seminar during the period 7th–8th March, 2011, and then in May, we are working on resuming our series of very successful market forums with an event in China, details of which will be forthcoming shortly.

In terms of publications, many of you will have seen the recently published history of the London Gold Delivery List from 1750 by Timothy Green and with considerable input from Stewart – it is truly a fascinating read for anyone interested in the bullion market. The quarterly *Alchemist* continues as our flagship publication and one which we continue to look to improve and develop. Our annual poll of forecasters is pre-eminent I believe, and closely followed.

LBMA Membership has remained steady despite some losses through mergers and we are pleased to see a constant stream of interest from around the world in joining the Association. The Membership Committee plays a critical role in that process and in ensuring our stringent membership standards are maintained.

Regulation was a focus for the LBMA in 2010, one which will undoubtedly continue in 2011. With the first registrations behind us, I believe we have done all in our power to ensure that the market complies with REACH. Issues such as VAT, have required a great deal of effort and I would like to single out David Blaney of UBS for his supreme efforts on this. On other regulation fronts, we are engaged with other industry organisations on the issues of US & EU OTC Market Regulation, Conflict Gold and Basel. Given the various regulation issues facing the market, the Management Committee is looking at ways the Association can provide further assistance to our Members. In the same way, I sense that there may be something the LBMA is well placed to provide to our refining Members when it comes to industry co-ordination.

Local and international industry co-ordination is a subject which the LBMA began to address in 2010 and which I sincerely hope to continue to address this year. Recently, the six Chairmen of the LPPM, three fixing companies, the LPMCL and the LBMA sat down to discuss various issues facing the market. These meetings will now take place more frequently to continue our dialogue on a wide range of issues concerning the current status and future of the London bullion market. But beyond this, we must also recognise that we are part of a global industry, involving a wide range of interested parties along the pipeline from mine to consumer. That industry is represented by a number of organisations – the Silver Institute, the European Precious Metals Federation, the International Precious Metals Institute, the International Platinum Association, the World Gold Council and the Platinum Guild to name but a few. We are all trying to deal with critical issues that will define the futures of our businesses. In some cases, there are scarce resources to do this work. In others, there is considerable replication of effort. Some groups in the industry don't have a single voice – for example, the precious metals refiners. I think it is high time that we all consider how best to marshal our collective resources and think about how we can best represent, and dare I say defend, our industry. To that end, I think we need to consider holding a meeting of all these key organisations.

I think you can see that the LBMA is uniquely placed to assist with industry co-ordination. But we are a trade association and you are its members – it does what you want it to do. So I welcome your input to our discussions as to the LBMA's future direction. ■

Market Moves

Mitsui Global Precious Metals

Nick Frappell joins Mitsui in London as Vice President, Marketing. He started in the precious metals market at Bank of Boston and then joined Sumitomo Corporation in Tokyo and London, before moving to Sempra Metals. Nick then joined Triland, where he was Head of Precious Metals. Nick has served on the Management, Finance, and Membership Committees of the LBMA, and the Market Advisory Committee of the NYMEX.

Dr David Jollie recently joined Mitsui in London as Strategic Analyst, covering all of the precious metals. David previously spent 12 years with Johnson Matthey, where he was most recently the author of Johnson Matthey's reviews of the platinum group metal market.

Richard Horton joins in Singapore to serve the greater Asia-Pacific region excluding China and Japan. Richard began his career with Ayrton Metals before moving to Sydney, where he established the Dresdner Bank metals desk and was later with Bankers Trust. More recently, he worked in the Australian power/carbon sector at Integral, an energy retailer, and subsequently with Altona Energy.

Miguel Vias will work in London, trading the Gold and Silver books. He began his career on Morgan Stanley's precious metals desk. In 2006, he moved to Bank of America, where he was responsible for managing the precious metals options portfolio. Following BOA, Miguel joined Techemet Metals Trading to trade precious metals and FX.

Karina Acosta joins as Vice-President of Marketing, based in New York. Before joining Mitsui Global Precious Metals, she worked for over ten years at Industrias Peñoles. There she was responsible for managing the company's financial risks, including its exposure to metals, energy, foreign exchange and interest rates.

Yuanhang 'Alex' Wang joins in Hong Kong as a Derivatives Trader. Alex worked in JP Morgan's Global Commodity Group in Singapore until early 2009, where he held a variety of responsibilities in commodity derivatives.

Isabelle Garreau to Bank of Nova Scotia-ScotiaMocatta

Isabelle joins as Director, Trading in London from ANZ Bank, where she was employed as a commodities derivative trader for both precious and base metals. She holds both Bachelor's and Master's degrees in Mathematics from Paris VI University.

Michael Ludwig to Standard Chartered Bank

Michael joins Standard Chartered in London, where he will manage the Physical Operations Team. He moves from BNP Paribas, where, after joining in 2006, he set up the Precious Metals Middle Office/Trade Support Team. In his previous role with Commerzbank Intl. S.A., Luxembourg, he was responsible for the Global Physical Precious Metals Operations.

Colin Griffith leaves Dubai Multi Commodities Centre

Colin left DMCC at the end of 2010 after working for the company since 2003 – the first four years as Executive Director - Gold, whilst living in Dubai. Colin was also Chairman of the Dubai Gold & Commodities Exchange from inception in 2005 until 2008. Since returning to live in the UK, Colin has worked for DMCC/DGCX as its European Representative.

Prior to working for DMCC, Colin held senior managerial positions at Mocatta & Goldmid (now Scotia Mocatta), Credit Suisse and Standard Bank, and was a member of the LBMA Management Committee from 1988-1993 and 1995-2003.

facing facts

Paul Burton
Managing Director
GFMS World Gold Ltd

Major Concerns – Big is not beautiful anymore

Over the past year, Barrick Gold was once again, by some way, the largest gold producer in the industry, with gold output of almost 8 Moz. This was despite lower attributable production from Tanzania, following the spin-off of African Barrick Gold, and marked declines in Peru, at its Pierina and Lagunas Norte mines. Production was lifted significantly by improvements from the Cortez, Goldstrike and Veladero mines.

On a quarterly basis, Barrick was also the largest gold producer, with output of just over 2 Moz.

But size, although it can mean huge profits at current price levels, does not necessarily translate into impressive market performance.

Here's what has happened in the market in the last year. Over the past 12 months, the London gold price rose by 19% to reach US$1,415/oz (in the first week of December). With such a rise, one would expect gold producers to benefit from the bullish market – and they did. The FTSE Gold Mines index, the most representative index of the major players in the gold-mining industry, administered in London, rose marginally more – by 20%.

So a good return for investors, but perhaps not as good as they might have expected when they bought the shares, given the

leverage that major gold producers have traditionally shown to the underlying gold price. When the gold price went up 19%, they may have expected a 40% rise in their investments. Leverage is one of the main reasons why fund managers put their money in a gold-producing company rather than the metal itself. For certain periods in the past, the producers, mainly because of their cost structures and the fact that they have a chance to expand the ounces invested in through exploration, have outperformed the gold price in percentage terms, usually by a considerable amount.

Therefore, only marginally outperforming the gold price is not such a good result, although it is better than the market has seen for a number of years, as the majors have been particularly sluggish. When some of the smaller producers have been posting exceptional capital returns on the stock exchanges, their larger colleagues have been muted at best.

Looking at a shorter time period of six months, the FTSE Gold Mines index has recorded a more positive increase of 27%,

Top ten gold producers

	12 Month (koz)
Barrick Gold	7,984
Newmont Mining	5,496
AngloGold Ashanti	4,549
Gold Fields	3,499
Goldcorp	2,432
Kinross Gold	2,271
Newcrest Mining	2,039
Harmony	1,389
OJSC Polyus Gold	1,287
Buenaventura	1,149

Top ten gold producers Q3 2010

	Sep-10 (koz)
Barrick Gold	2,060
Newmont Mining	1,408
AngloGold Ashanti	1,162
Gold Fields	908
Newcrest Mining	674
Goldcorp	596
Kinross Gold	575
Harmony	337
Agnico-Eagle Mines	279
Buenaventura	273

against 16% for the underlying gold price.

Let's look in a little more detail at performance over different periods of the past year. The table below shows how the major gold producers have fared in relation to the gold price and the FTSE Gold Mines index.

	1M	3M	6M	1Yr
Agnico-Eagle Mines	6%	23%	36%	22%
London Gold Price	1%	13%	16%	19%
OJSC Polyus Gold	16%	35%	38%	16%
Barrick Gold	9%	12%	19%	11%
Newmont Mining	-3%	-1%	9%	7%
Newcrest Mining	-2%	5%	23%	6%
Gold Fields	7%	13%	9%	4%
Goldcorp	4%	3%	3%	0%
AngloGold Ashanti	1%	7%	1%	-3%
Harmony	0%	6%	3%	-8%
Zijin Mining	-4%	31%	30%	-15%
Yamana Gold	9%	14%	8%	-17%

Over a 12-month period, only Agnico-Eagle recorded a better performance than the price of the metal – 22%, against 19%. Some of the majors have even shown negative returns. The only period in which the major producers have exceeded the gold price rise is in the last six months.

There are a number of reasons why the larger miners haven't fared as well as their smaller counterparts.

They are viewed by investors as having low growth profiles, for a start. It can be difficult for a monolith that produces 8 Moz of gold in a year to find that many ounces each and every year to replace its reserves, let alone to grow its gold output in the future. On the other hand, however, a 200 koz/y gold producer can be more nimble and find or acquire smaller deposits, which will make a significant difference to its reserve inventory and production profile. It can grow more easily and growth is highly prized in this industry.

Having said that, five of the top ten producers added production over the past year. Comparing Q3 2010 with Q3 2009, Newcrest Mining and Agnico-Eagle Mines both achieved significant increases in production through acquisition, but although Barrick Gold, Newmont Mining and Kinross Gold added to their production, the amounts were relatively small.

The large producers are also being weighed down by cost increases, which have kept apace or exceeded the price increases during recent years. The industry as a whole saw its costs rise by 13% year on year in Q3 2010, as the Mining Industry Cash Costs table to the right shows.

It was the South African listed companies that saw the biggest increase, as year-on-year average quarterly costs rose 21%, to US$726/oz. However, this is substantially lower than the increases seen in previous quarters. Among the country's major producers, AngloGold Ashanti's and Gold Fields' costs rose by around 20% year on year, while at Harmony, the geographically least diverse of the three producers, costs rose by nearly 30%.

Operating costs in South Africa remain under pressure from higher consumable and labour charges, and declining production, and were further strained by the appreciation of the rand-dollar exchange rate. Also, as of April, Eskom increased electricity tariffs by 25%, which in the quarter was further compounded by the controversial 35% bumper winter electricity tariff.

As the table below shows, only three of the majors (Goldcorp, Yamana Gold and Agnico-Eagle Mines) feature in the top ten in terms of cash costs.

	1M	3M	6M	1Yr
Agnico-Eagle Mines	6%	23%	36%	22%
London Gold Price	1%	13%	16%	19%
OJSC Polyus Gold	16%	35%	38%	16%
Barrick Gold	9%	12%	19%	11%
Newmont Mining	-3%	-1%	9%	7%
Newcrest Mining	-2%	5%	23%	6%
Gold Fields	7%	13%	9%	4%
Goldcorp	4%	3%	3%	0%
AngloGold Ashanti	1%	7%	1%	-3%
Harmony	0%	6%	3%	-8%
Zijin Mining	-4%	31%	30%	-15%
Yamana Gold	9%	14%	8%	-17%

The larger producers – the majors as we call them – are making good profits at these price levels but are not providing investors with any sparkle. It may be that the business model that has served the industry since 1998, when the global majors

Mining Industry Cash Costs

Region	Sep-10 US$/oz	Sep-09 US$/oz	y-o-y (%)
South Africa	726	601	21%
Australia	530	459	15%
Canada	465	435	7%
US	473	409	16%
UK	657	634	4%
Av. Costs*	**541**	**478**	**13%**

*For the 70 gold producers that World Gold Analyst monitors

consolidated their positions, has now run its course, and it may be a time to split up the monoliths into smaller, regional units, such as Barrick Gold did earlier this year when it hived off its African assets into African Barrick Gold. ■

Paul Burton

paul.burton@gfmsworldgold.com

The Alchemist is published quarterly by the LBMA.
For further information please contact Alice Toulmin,
3-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The *Alchemist* is designed by Ion River.

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for **a variety of sophisticated precious metals products**, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPM
GOOD DELIVERY REFEREE

Alchemist

The London Bullion Market Association ISSUE 62 May 2011

LBMA

In this issue

Photograph © MFP Group

Silver's Sunlit Uplands – Lucainena de las Torres, Almeria, one of many solar energy parks using photovoltaic panels. Michael DiRienzo highlights some key industrial uses for silver on page 23.

Analysis and standards are vital however the price moves: Jonathan J Jodry shares the process of analysing LBMA Certified Reference Materials at Metalor on page 3.

The Fourth LBMA Assaying and Refining Seminar

was held at Armourers' Hall on 7-8 MARCH, 2011. More than 120 delegates attended, enjoying both presentations building on the work of previous seminars and those on new topics. Two highlights are printed in this publication: Jonathan J Jodry's description of work on certified silver reference materials is on the facing page and Dr Ian Severn's explanation of mass measurement in the UK begins on page seven. All presentations and transcripts from the seminar can be found in the Members' area of the LBMA website.

Silver

From analysis of Reference Materials to a new ISO Standard

By Jonathan J Jodry, Head, Trace Analysis Laboratory, Metalor Technologies SA

The following is an edited version of a presentation made at the Fourth LBMA Assaying and Refining Seminar.

I shall focus specifically on the LBMA certified silver reference materials. When we started our analyses, I was expecting it to be a pretty straightforward process. We believed that we knew how to analyse silver, but discovered in the process that the analysis was much more difficult than expected. We had to change our methods so much that we are now proposing a change to the international standard for the analysis of silver.

General Approach

Normally two techniques are used. First, there is analysis as a solid, which is typically done by spark OES spectrometry, a very fast method with several problems. The calibration is complex, you can only analyse a limited number of elements and it is only appropriate for specific shapes. The second technique is to analyse material as a solution. This is a precise, versatile method – at least it can be precise. The only problem is that you need to dissolve the material quantitatively.

For gold, platinum and palladium, the process is quite straightforward: aqua regia will eventually dissolve the material. Sometimes you have to use heat, sometimes you have to use pressure, but it will eventually dissolve. And this is not new chemistry; aqua regia has been known since the 11th century.

For silver, however, the same procedure will produce a solid (silver chloride) and a supernatant solution. You can analyse the solution; or you can use an alternative acid, such as dilute nitric acid, to produce a limpid solution and analyse that instead.

The Steering Committee selected 10 laboratories and asked them to analyse the new silver reference materials using whichever method they deemed acceptable. Two main methods were used, as I have just explained: either the nitric solution approach, where the material was dissolved in nitric acid and directly analysed; or the aqua regia approach, which is also the ISO 15096 (2008 version) standard, where the material was dissolved in nitric acid and then hydrochloric acid was added to precipitate AgCl and the supernatant was analysed.

Silver RMs Analysis – Representative Problems

Let me show you which results were obtained. Figure 1 focuses on magnesium analysed in silver for RM1 and RM2. Each triangle is a result given by a laboratory. There are more than 10 of them because, as I said, laboratories were allowed to use several methods. The results were collated depending on the method used for the preparation – using nitric acid, aqua regia or any alternative method. The results in blue were those that were accepted. The results in red were those that were rejected. Results were rejected either because the technique was deemed afterwards to be inappropriate or because they were outliers following certain statistical tests that we performed.

If we take magnesium, for example, we see that the results obtained from nitric acid are pretty coherent, with all measurements very close to the average value. The same goes for higher levels of magnesium. However, if we check the results from aqua regia, we see that dispersion is much higher and the absolute value is also lower. This is explained by the fact that magnesium will adsorb in silver chloride and obviously will lead to a lower absolute value.

If we take another trace element, platinum, we see the opposite trend. We have a good result in aqua regia and a larger dispersion, more outliers and results that give lower values in nitric acid. Again, this is not surprising. It is well known that platinum dissolves pretty well in aqua regia and not that easily in nitric acid.

Which Method to Use?

When we saw those results, the first question was: could we just use the nitric acid results for some elements and the aqua regia results for other elements? The short answer is, unfortunately, no. In nitric acid, we have some elements that are perfectly stable. Take copper: the sample is prepared at time zero, and since it usually takes two to three hours before analysis is performed, the first concentration is obtained after three hours. The solution is analysed again after 18 hours, after 36 hours, and this continues for four days, showing results that are completely consistent and do not change over time. The same goes for certain elements such as bismuth, antimony, zinc and so on.

However, if we take other elements, we see that they are not as stable as we had hoped. Nickel, for example: starting with a value of 72 ppm after three hours, it dropped to 60 ppm after a day and half. The same trend occurs with several elements; indeed gold and rhodium will completely disappear after a day and a half. The problem is that even if you measure that solution even after only two, three or four hours, there is obviously a decrease, so you cannot be sure that the concentration you are measuring is the real concentration. Let us be honest, in daily work in the laboratory, if you lose one ppm of one of the trace elements, it is not such an issue, but for a reference material – something we want to be certified – this is obviously unacceptable.

Therefore, the conclusion for this first part is that, in nitric acid, we not only have a solubility problem, we also have some kinetic issues to consider.

ISO 15096 Standard

We then tried the method ISO standard 15096, the latest 2008 version. As it is an ISO standard method, we expected this to work very well. The standard is intended for jewellery analysis of silver with purity higher than 999‰, but obviously it can be used for any silver alloy of sufficient purity. The procedure is straightforward: weigh a certain amount of the test sample, dissolve it in nitric acid, heat it and then add HCl to precipitate silver chloride. After filtration and washing of this precipitate, and addition of extra HCl, the liquid phase is analysed by ICP-OES.

We used this procedure on the silver reference materials and several silver standards that we had made ourselves. Figure 2 shows the recovery rate. Basically, if the method

works, the result should be 100% for each element. The first thing we see is that this method absolutely does not work for four elements: cadmium, lead, bismuth and rhodium have less than 10% recovery. This is a clear sign that those four elements cannot be measured with this ISO standard. In fact, not only those four, but most of the elements (15 out of 20), give results that are not really useable. If we take iron, for example, we have a 70% recovery rate, which means a 30% error. This shows that this approach is not applicable for the analysis of our silver standards.

What we found in the end was that some elements could neither be determined in nitric acid nor in aqua regia. This was the case for rhodium, which is an extremely difficult element to measure in silver. Therefore, what you see here is that basically most of the results are completely out of range. But if you look at the third part of the graphic called ‘other methods’, it seems that this time, results are more coherent.

A New Approach for the Analysis of Silver

During the course of this project, which lasted over more than a year, we had to develop a new method that would allow us to measure all the elements quantitatively.

We started with a partial dissolution in nitric acid. Looking at the sample tubes, it appeared that the solutions could contain some suspensions, which can be isolated by centrifugation. This is more effective than filtration as there is no risk of contamination and it produces a liquid phase that can be analysed immediately. Then we dissolved the solid residue in aqua regia and analysed that solution, too. For each element, the exact value is the sum of both analyses.

What results did we find? Gold is found exclusively in the solid residue. Rhodium is found mostly in the solid residue, at about 80%. Many elements were found in both solutions, which means that they are present both in the nitric acid solution and in the residue. Other elements were found almost exclusively in the nitric solution. While this also depends on their relative concentration, it still gives a good idea of where elements can be found.

This method has three main advantages. There is no precipitate in the solution being analysed. Thus there is no problem with the cloaking of the ICP instruments and the solution is significantly more stable over time: if there is no suspension, the solution being analysed will remain reasonably stable for a couple of hours.

Figure 1 - A representative problem in silver RM analysis

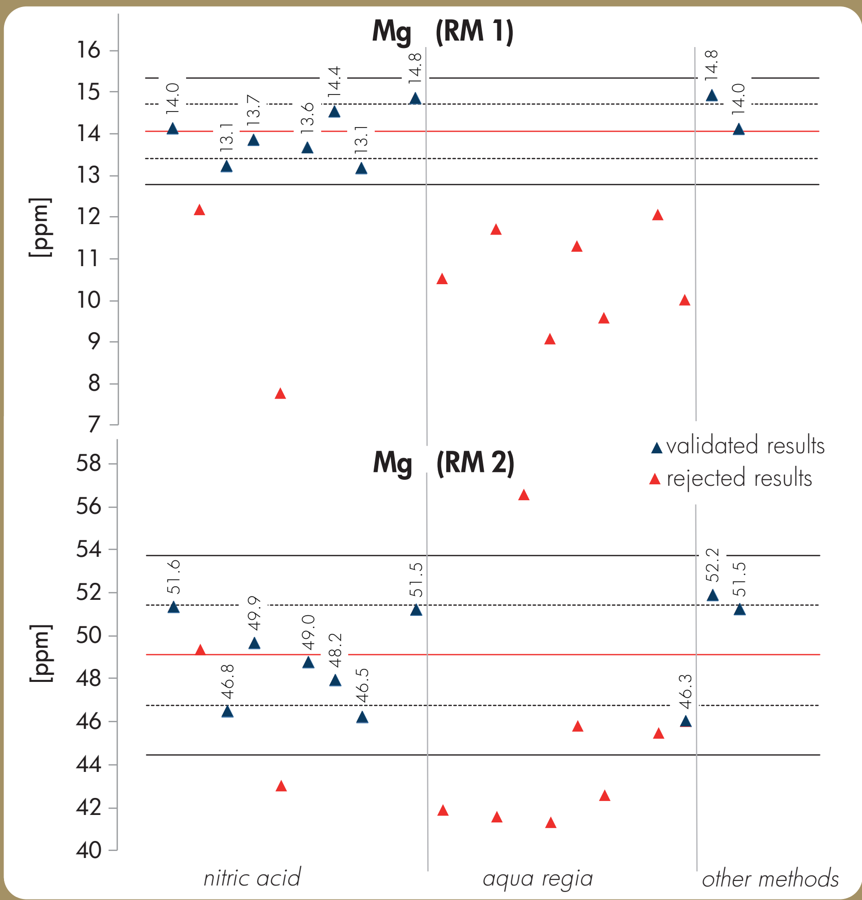
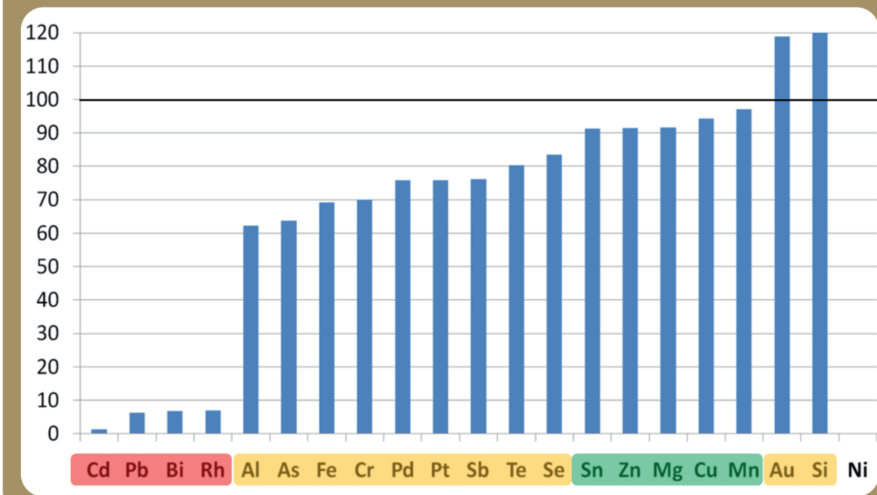


Figure 2 - ISO 15096 Standard Recovery Rate



The dissolution of the solid residue can be performed under pressure. This is mandatory for quantitative measurement of rhodium. If you do not use pressure, you will not dissolve most of the rhodium.

This method is valid for elements that are only partially dissolved, which was the big issue with the two previously used methods.

Your global partner for precious metals

Active in the physical and non-physical markets for almost a century, our award winning dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

– Gold, silver, platinum and palladium
– 24h global service from hubs in Switzerland, the US, Singapore and the UK
– Physical precious metals custody in our Swiss vaults
– Coins: trading, handling and storage
– Structured products and tailor-made hedging solutions
– Full range of OTC derivatives
– Gold ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335

Stamford: +1-203-719 1178
Singapore:* +65-6495 8474
London:* +44-207-567 6758

*non physical only

We will not rest UBS

www.ubs.com

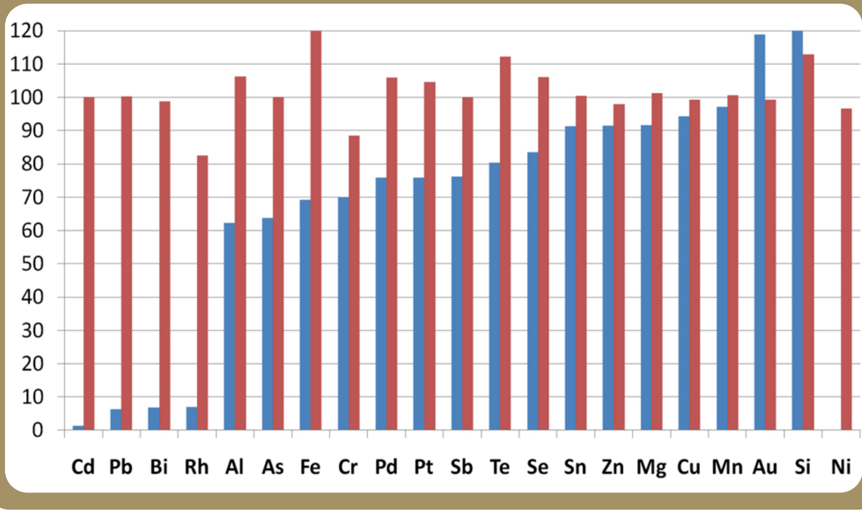
© UBS 2011. All rights reserved. 04441 Alchemist

Recovery Rates

Figure 3 (ISO standard in blue as in Figure 2) shows the results we obtained following the ISO standard, compared with the results we obtained with this new method. You can see that we went from 15 out of 20 elements that were not of acceptable accuracy, to 16 out of 20 giving results of plus or minus 7% relative to the target concentration. We have even improved the method further recently: iron was a little high due to contamination from the pressure vessel, but we have now found alternatives to prevent that.

This method is precise, and most of the results we obtained for the reference materials were accurate with this approach. Of course, this is one technique we developed at Metalor. We have shared it with other members of the Steering Committee, some of them use it, others use their own technique, so it is not necessarily the best technique around, but we have found it effective and relatively straightforward to conduct.

Figure 3 - Recovery Rate using new method vs ISO method



Conclusion

In conclusion, the silver reference materials are important in themselves as the first silver reference materials ever made. However, I think it is even more important that we learned a great deal about the analysis of silver, improving our techniques in the process. Now we have an approach to silver analysis that is completely different and, we believe, much more effective.

The main point is that you can only get good, validated results if you use a combination of two methods. Of course, it takes a little bit more time. You do not need to use this approach for daily analysis, but if you want precise results, this is the way to go.
At the ISO level, we have seen that the ISO 15096 standard (2008 version) is simply not applicable for complex silver samples. In fact, it is basically not applicable for any silver samples. Therefore, we are now working with the technical committee handling the standard and we expect to approve a new standard using the method I have described today.

Acknowledgements

I would like to finish with some acknowledgements. First, Dr Paul Bagnoud – I think many of you know him. He retired from Metalor last year, but he initiated this project and his contribution here was tremendous.

I would like also to thank my team, especially Quentin Bochud, our new engineer, who spent three months working exclusively on silver analysis from morning to evening. We have these results because of his work. The other team members, Cyril, Annik and Estelle, also did a great deal of analysis out of working hours to help us to advance.

I would like to thank all members of the silver Steering Committee, especially Mike Hinds. It was extremely interesting to work together at a scientific level, even if some of the companies are competitors. We were able to share detailed scientific knowledge and I think that we all improved our analysis techniques in the process, and will continue to do so. Finally, I would like to thank the LBMA for organising the project and this seminar. ■

Jonathan J Jodry

got his PhD at the University of Geneva in 2000 in organic and supramolecular chemistry; he moved then to Japan to the Tokyo Institute of Technology as a JSPS post-doctoral fellowship in the field of catalysis and ionic liquids, before joining Central Glass, a Japanese company that specialises in fluorine chemistry, where he was responsible for development, scale-up and analysis of organic materials used by the semi-conductor industry. He finally came back to Switzerland and, in 2009, joined Metalor Technologies at Neuchâtel, where he is now head of the trace analysis laboratory.

LBMA GOLD AND SILVER REFENCE MATERIALS

Contact the Executive for further details and ordering information. For gold, there will be a difference of at least 10 ppm between the concentrations in RM1 and RM2.

Gold Reference Materials

Element	Au-RM1	Au-RM2
Ag	20±10	100±50
Al	10±5	30±15
As	12±6	40±20
Bi	30±15	10±5
Ca	10±5	30±15
Cr	10±5	30±15
Cu	10±5	30±15
Fe	10±5	30±15
Mg	30±15	10±5
Mn	10±5	30±15
Ni	10±5	30±15
Pb	10±5	30±15
Pd	10±5	30±15
Pt	10±5	30±15
Rh	10±5	30±15
Sb	30±15	10±5
Se	12±6	40±20
Si	10±5	30±15
Sn	10±5	30±15
Te	40±20	12±6
Ti	10±5	30±15
Zn	10±5	30±15

Silver Reference Materials

Element	Ag-RM1	Ag-RM2
Al	5-10	20-40
As	20-40	5-10
Au	5-10	20-40
Bi	10	50
Cd	5-10	20-40
Cr	5-10	20-40
Cu	20	100
Fe	5-10	20-40
Mg	20-40	5-10
Mn	5-10	20-40
Ni	5-10	20-40
Pb	50	10
Pd	5-10	20-40
Pt	5-10	20-40
Rh	5-10	20-40
Sb	5-10	20-40
Se	20-40	5-10
Si	5-10	20-40
Sn	20-40	5-10
Te	5-10	20-40
Zn	20-40	5-10

Mass Measurements in the UK

What's in a kilogram?

By Dr Ian Severn, Head, Engineering Measurement, NPL

The following is an edited version of a presentation made at the Fourth LBMA Assaying and Refining Seminar.

The National Physical Laboratory (NPL) is the UK's National Measurement Institute and has been managed on behalf of the Government by a company called Serco for 16 years. The NPL was formed in 1900 and is one of the top three such institutes in the world. A prime function for the NPL is to ensure that measurements made in the UK are equivalent to those made in the rest of the world. Every developed country has an equivalent organisation.

This manifests itself in many ways, from facilitating trade through ensuring something weighed or measured has the correct value associated with it (ie weighing a bag of sugar or trading commodities), through to things like the measurement of the temperature of the earth through satellite observation; making sure that the temperature measured by one satellite systems is equivalent to that measured by another.

Measurement is easy?

Measurement is easy, is it not? We all have a ruler, we all have scales we weigh ourselves on in the morning. If you were to go back 2,000 years, the Romans could do measurement – they were very good at it – it facilitated engineering achievements that remain impressive even by modern standards. An example of this is the water system built to take water to Nimes in France. Over a 50 km distance the height of the waterway changes by less than 17 metres, including the construction of aquaducts such as the Pont du Gard. To get the surveying right, to actually get the water to flow in the right direction over the whole course of it, remains impressive.

It is very easy to become complacent

Indeed even earlier than the Romans, the Egyptians were using measurement to great effect, for example in the construction of the pyramids. However, to underestimate the difficulty of measurement is to ask for problems. In the 20th century the Laufenburg Bridge was constructed between Germany and Switzerland, both extremely impressive, leading engineering countries. Unfortunately when the construction teams reached the middle there was a 54 cm difference in height between the two halves of the bridge. In the UK, about five years ago, a survey of blood pressure measurement was carried out in southeast London: about 30% of all the measurements were actually incorrect, and not incorrect by a subtle amount. They were incorrect by an amount that meant people were getting incorrect medication. So, it is important that people get measurement right, even in something where it looks routine. It is very easy to become complacent about whether a measurement is correct or not.

The Measurement System in the UK

The National Measurement Office, on behalf of the Department for Business, Innovation and Skills, funds four different organisations to deliver the core of the UK Measurement system, shown in Figure 1.

Mass measurement lies within the scope of physical measurement and the UK's mass scale is derived from NPL, where the national mass standard (kilogram 18) is held. Once NPL has realised the mass scale it is disseminated throughout the UK either directly to industrial users or via accredited laboratories. The United Kingdom Accreditation Service (UKAS) is responsible for ensuring that these accredited laboratories are competent to perform measurements in an appropriate manner.

There has been a lot of investment over many years into this accreditation system, and it is, by definition, the way that all mass measurements should be traceable. Mass is also interesting as it is a base unit meaning that other units of measurement are derived from it, such as pressure, humidity and force. So, we also calibrate items to facilitate that.

The exception to the traceability route outlined above is weights used for trading purposes (legal metrology). In this case the dissemination happens from NPL via the National Measurement Office.

Users of Measurement

Who uses measurement? Industry: for example, a company like Rolls Royce, building jet engines, needs to know that the parts fit together and align correctly, and that the turbine blades are not going to melt in the engine. In medicine NPL provides traceable measurements throughout all the radiography departments in the UK, where cancer is being treated with very precise radiation doses. A further example is in Health and Safety where it is vital to know if a cable used to tether an oil rig can withstand the force that will be exerted on it.

In Europe, it is estimated that between 2% and 7% of gross domestic product is directly related to measurement. It is absolutely a key parameter, and it is essential that everybody gets it right.

Figure 1 - Measurement Organisations

Organisation	Measurement Areas
National Physical Laboratory	Physical and Biological
Laboratory of the Government Chemist	Chemical and Biological
National Engineering Laboratory	Flow
National Measurement Office	Legal Metrology

Mass Measurement

Today, the situation for dissemination of mass measurements in the UK is virtually identical to that of all the other industrialised countries in the world.

The kilogram

Figure 2 shows the International Prototype of the kilogram (a weight that is defined to weigh exactly 1 kilogram and from which the mass of all other weights in the world are derived). It is a cylinder of platinum-iridium that is kept in a vault just outside Paris under two bell jars, to protect it from atmospheric contamination. Around the world, there are about 90 copies of this kilogram. They were made somewhere between 1880 and 2000, in three or four different batches.

This definition of the kilogram dates back to the late 19th century when scientists where seeking practical ways to define the basic measurement units. Considerable thought was given to the choice of artefact in order to make it as stable as possible:

Shape – The international prototype of the kilogram is a cylinder of height equal to its diameter (about 39 mm). With the exception of a sphere, which would be difficult to handle in a safe manner, this shape represents the minimum surface area for a given volume of material. This minimises the chance of contamination on the weight.

Material – Platinum iridium was chosen as it is chemically unreactive and it is dense – so minimising the volume and hence surface area of the weight. It should also be noted that an alloy of platinum-iridium is used as this is much harder than pure platinum. This is important if the weight is to avoid being damaged in use. The material for most of these platinum-iridium kilograms was manufactured at Johnson Matthey in London.

This definition has served us well for over 100 years, but it is not as robust as the definitions of other base measurement units (such as the metre or the second) which are based on fundamental scientific constants (eg the speed of light). The definition means that any change in the mass of the international prototype of the kilogram would change the value of all of the mass scales in the world. Figure 2 shows how the mass of other copies of the kilogram have varied relative to the international prototype. There has been a 50 microgram, or 50 parts in a billion relative change. Given that these copies were made at the same time as the international prototype using the same production methods, there is no sound reason why there should be significant changes in their relative values. If you are weighing pharmaceuticals or if you are measuring very large forces, such as the sort that tether oilrigs, these uncertainties and errors extrapolate and grow. So these anomalies are important.

In the UK, we have three official copies and an unofficial copy of the kilogram, which allows us to ensure that our copy of the kilogram is not changing mass relative to the others.

Improving Definitions

There is a requirement to improve how we define mass. Our current method is good enough for industrial practice because everything is consistent. This is the whole purpose of having an organisation like the NPL. It makes sure that the measurements made in the United States are equivalent to those in Germany, the UK, France, Malaysia, wherever. However, it does not mean that it is right; it just means we all get the same answer because we use the same methods.

Figure 2 - International prototype of the kilogram

It is worth noting that we believe the UK's kilogram has been stable to within 14 micrograms – 14 parts per billion – over the last 100 years. The weight gets dirty even though we keep it in a glass bell jar with a filtered air inlet. It is just an aspect that metal gains weight, as you store it in air, because it gets contaminated. We have systems here we can use to clean this and always have a consistent answer. If you look at most of the weights that have been kept within Europe and North America, they are of a similar performance to that of the UK.

Redefining the kilogram

Within the next five to 10 years, the kilogram will be redefined, and it will be redefined in terms of a constant of nature, probably Planck's Constant. This will remove the reliance on a single artefact that could change over time. There are two ways that this can be done:

Silicon-based kilogram

One of these methods is to use a known weight such as an atom of silicon. If you have enough atoms, you can make a kilogram. So, if you can measure the volume of a sphere made from pure silicon and know all about its surface and know the spacing between the silicon atoms, you can define a kilogram in those terms. It is actually very difficult to do, and work (through an international consortium) has been in progress on this for 20 or 30 years.

An electrical kilogram

Another possibility, which we at NPL like, because we invented the method, is that you can balance the gravitational force on a weight against an electrical force. The electrical force is analogous to an electric motor. A current flows through a wire wrapped around a magnet that generates a force. We know the electrical unit of current and we can measure magnetic fields – or actually we can cancel them out – very well. So, if you can balance that electrical force with a gravitational force, you can define the kilogram in terms of that. This is likely to be the method adopted to redefine the kilogram within the next five years.

There are around five different experiments around the world looking into this. The reason it cannot be redefined at the moment is that, whilst we can achieve quite low uncertainties, they do not agree. We are pursuing experimentation to make sure that the different experiments come together and establish what the true value is. This will probably happen somewhere around 2015-18.

Concluding Remarks

The measurement procedures for precious metals are fine in terms of where they are now, and they have evolved to where they are now such that the requirements in terms of the uncertainty you can achieve in a measurement, the potential error in that measurement, are very closely linked to the technologies used in the weighing process.

The one warning I would give is that if, all of a sudden, you improve one parameter or one method in this – say, for example, you go and use improved balances (which are available) – there is a real risk that you think you are doing things with lower measurement uncertainties than you actually are. When you compare platinum-iridium with a stainless steel weight, it will depend on the density of the air at the time. In the UK, the density changes by about 10% during the year. So, you will get a different answer in the summer, when the pressure is high, than in the winter, when the air pressure is lower unless, you make appropriate corrections. The same is also true if you compare gold with stainless steel weights. As you move to better weighing technologies, you need to take into account these other effects, or you could create a problem going forward. It is just a question of being aware of that and making corrections.

Questions and Answers

Stewart Murray
In the bullion market, we use beam balances and we also use electronic scales. Will the effect that you mention of different air densities affect both of these equally or one more than the other?

Dr Ian Severn
Both equally. The key thing is the difference in volume or density between the standard with which the electronic balance was calibrated and the density of the item you are weighing, so in your case, gold, which is of course much more dense than steel. There is nothing wrong with the procedures at the moment. I suspect that, as with most procedures, they have evolved to a common well-defined place.

Stewart Murray
What is the difference that you could get between the highest and the lowest air pressure, weighing something like a 400 troy ounce gold bar? Are we in the eighth or ninth significant figure?

Dr Ian Severn
No, it is fewer significant figures than that. It is going to be at the fourth or fifth significant figure, potentially – perhaps fifth or sixth.

The other thing that you have to bear in mind that as you are at different altitudes, the air density changes even more between locations. For example, in the UK, the typical air density is about, ignoring the units, 1.2. In Madrid, it is typically about 1.02. So, there is a huge change: 20% or more.

Stewart Murray
When you have got an electronic scale and you take it to Madrid or Colorado, do the manufacturers correct for the altitude and the different gravity in these different places?

Dr Ian Severn
It actually does not matter in terms of the gravity and the altitude: because if you calibrate the scale using a weight in the same location, it all cancels out. So, electronic balances work well wherever; it is just about being aware of the more subtle effects like buoyancy and the air density that are the key things.

Gareth Owen-Jones (Sartorius UK)
It really becomes an issue if you move the balance from one place to another, because if you weighed something here and then took the balance to Mexico City and did not calibrate it, there would be an enormous difference.

Participant
If you weigh something in your own part of the world and then you compare the weight to the LBMA, according to their assaying and their weighing balances, would that have a difference?

Dr Ian Severn
As long as weighing is done correctly, gravity should not make any difference. Whether you are using a two-pound balance or an electronic balance, gravity is compensated for by the weighing process, as long as it is done correctly. The particularly important thing is that the electronic balance should be calibrated in the location where it is going to be used. If that is done, then there should not be a problem. ■

Ian Severn *is head of the Engineering Measurement Division at the National Physical Laboratory, the United Kingdom's national measurement institute. He started his career there 20 years ago as a mass metrology specialist and became Head of the Mass and Density Group. The area he heads includes responsibility for the realisation of the UK measurement scales associated with length, mass, temperature and optical radiation.*

LBMA Precious Metals Conference 2011
in association with the LPPM

**Le Centre Sheraton Montreal,
18-20 September 2011**

LPPM LONDON PLATINUM & PALLADIUM MARKET
www.lppm.com

LBMA
www.lbma.org.uk

After three years of historic highs, where now for investors? Where does Asian spending power come from? How will new industrial demand affect the markets and will increasing regulation hold them back?

For answers to these and other topical questions, mark your diaries for the twelfth annual LBMA conference, held this year in association with the LPPM.

Conference hotel booking is available now, while delegate registration opens in June.

Visit the LBMA and LPPM websites for further details.

There's a place for all market players at the LBMA Conference - registration opens June 2011

The LBMA Annual Party

at Circus, Covent Garden, started on a high note and went with a swing. Acrobatic performances were enjoyed by Members and Associates and some demonstrated their own skills... More photographs can be seen in the Members' area of the LBMA website.

COMMERZBANK

What you need is a global partner in precious metals

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium, Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg CBGL<GO>
Reuters CBGL
Direct contact +352 477 911 2540

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request. Copyright © Commerzbank AG 2011

Achieving more together

What do Academics Think They Know About Gold?

By Brian M Lucey, Associate Professor of Finance, School of Business Studies, Trinity College Dublin

Over the last decade, gold and other precious metals have been on a remarkable run. In February 2001, when I became interested in the properties of gold as a financial asset, gold stood at about $260 per oz, compared to its price now in the region of $1,500 – a remarkable, sustained and intriguing bull run.

The purpose of this note is to give readers an insight into what academics (think they) know about the economic and financial aspect of the gold market, and therein to perhaps set up what I hope to be a debate on how industry and academia can work together better to gain a greater understanding. There are, as we shall see, relatively few academics working on the gold market. This is puzzling, especially when we compare the torrent of papers that rightly have been published on equity, bond and currency markets. To a great extent, the research being carried out on gold is 'in house' and in what is called 'grey' literature. That does not make it any more or less higher quality than peer-reviewed academic papers, but it does beg a question as to why. One common response that I and others who do research on gold get from fellow academics is, "but why, isn't that the realm of conspiracy theorists and the extreme right". It's fair to say that the academic, and more generally the research community on gold has not managed to persuade the wider community that its work is worthy of attention.

One issue that confronts the researcher when searching bibliographic databases (the main bibliographic databases for academic economic and financial researchers would be Econlit, Scopus and SSRN) is that gold appears as a major research trend in at least three discrete areas. These are the economic and financial aspects of gold (the focus here), gold as a currency (the gold standard, bimetallism and historical uses of the metal), and the nature and impact of gold mining on the environment and on society. Focusing on the first is not to in any way downplay the importance of the other two, but merely to provide a framing for the discussion. In total, close to 700 papers have been published on these areas since 1990. Restricting this further to academic papers on the investment and economic aspects of gold, I was able to identify approximately 200 papers in the area. A full bibliography is available by email, but a number of trends emerge.

There has been a remarkable explosion in research on gold in the last number of years.

First, there has been a remarkable explosion in research on gold in the last number of years. Of the 186 papers I have collated, 26 were published in 2010 or the first quarter of 2011, with a further 40 published in 2008-2009. Given that academic papers typically take six months or more to go from idea to final publication, this indicates that, since 2008, a major research shift has taken place. The implication of this is that the time is now ripe for greater market-academic intervention in a structured manner. In this issue of the *Alchemist*, we see a potential model for this, with the announcement of the LBMA Bursary, a PhD bursary in the economics and finance of the gold market. This model, if more widely adopted, would result within three to five years in the generation of a large body of research on aspects of the market of concern to the industry, the influx into the industry of high-quality researchers trained to the highest modern standard in economics and finance, and the further mainstreaming of gold market research.

Second, there are clear trends in the author and citation patterns, with a relatively small number of authors contributing the most heavily cited and downloaded papers. Thus while there is a growth in the literature, it remains concentrated.

Third, there are a number of common trends in the literature in terms of the locus of investigation. The main areas of academic research are gold as a diversifier, as a hedge against inflation or other assets, and the efficiency of the operation of the gold market. So what do academics know (or think that they know) about these issues?

Perhaps the most studied area is the role and weighting that gold might have in a portfolio. Sherman (1982) suggested a weighting of 5% in an equity portfolio resulted in lower risk and higher return, while weighting as high as 25% has been proposed by Chua (1990), mainly down to the then low or negative correlation between gold and equities. More recent research by Hillier, Draper et al (2006) suggests weights in the small percentages for a variety of precious metals, with gold acting as the most efficient diversifier.

Considering gold and oil together, Bruno and Chincarini (2010) suggest a weight of 10% for non-US based investors seeking portfolio diversification, while Scherer (2009) for sovereign wealth funds and Klement and Longchamp (2010) for high net worth individuals suggest an allocation in the range of 5% to 10% by weight to gold in an equity portfolio.

Much of the attractiveness of gold, on reading these and related papers, comes from its low correlation combined with its positive skewness, where there is a greater chance of a, say, 1% rise in one day than there is a 1% fall in any one day. Examining this and explicitly noting that this provides downside risk, Lucey, Poti et al. (2006) examine portfolio choice where the investor is concerned with such downside protection and find an optimal weight of between 6% to 25%, depending on the time period and the other (mainly equity) assets included.

The combination of low or negative correlation and high positive skewness also has begun to attract attention. An asset with low/negative correlation might well act as a natural hedge, while the skewness element might suggest safe-haven properties. However, a hedge asset may not provide safe-haven status. These have been explicitly examined in recent years, with Baur and Lucey (2010) providing the first statistical test of when gold acts as a safe haven and when as a hedge, with Baur and McDermott (2010) extending this to more countries. They find that while gold acts on average as a hedge against equities, it does not do so against bonds, but that it can and does act as a safe haven for bonds as well as stocks, extending its usefulness to investors beyond equity investors.

There is of course a long and detailed research tradition examining gold as an inflation and dollar hedge, with major contributions from Fortune (1987), Moore (1990), Taylor (1998), Ghosh, E. J. Levin et al. (2004), Worthington and Pahlavani (2007) and more recently Blose (2010) and Wang, Lee et al. (2010) on the hedging potential for gold against inflation, and by Johnson and Soenen (1997), Capie, Mills et al. (2005), Tully and Lucey (2007), Sjaastad (2008), Hammoudeh, Sari et al. (2009) and Sari, Hammoudeh et al. (2010) against the dollar. The general evidence is that while it can act as a useful diversifier, this is a long-run phenomena and comes at the cost of increased short-run volatility. There is also very significant evidence that these relationships are quite unstable over time, with slow reversion to the norm.

Much work has also been undertaken by academic researchers on a wide variety of aspects of the operation and efficiency of the gold market. Thus, from Solt and Swanson (1981) through to Diba and Grossman (1984), Ma and Sorensen (1988), Aggarwal and Soenen (1988), Lucey and Tully (2006), Aggarwal and Lucey (2007) and more recently Tully and Lucey (2007) and Lucey (2010), we find significant evidence that the gold market is not efficient, in the sense that there may be exploitable anomalous behaviour. At a more operational level, Baker and Van-Tassel (1985), Tandon and Urich (1987), Ding, Granger et al. (1993), Byers and Peel (2001), Matsushita, Da Silva et al. (2006), Tully and Lucey (2007) and Khalifa, Miao et al. (2011) find that shocks to the gold price take a very long time to dissipate.

The relationships between the various precious metal markets have been examined by Ma (1985), Escribano and Granger (1998), Ciner (2001), Lucey and Tully (2006) and Hammoudeh, Sari et al. (2009), with the general finding being that there is no strong evidence of long-run stability in the relationship. The effect of macroeconomic information on gold has been examined by Tandon and Urich (1987), Christie-David, Chaudhry et al. (2000), Tully and Lucey (2007), Batten, Ciner et al. (2010) and Roache and Rossi (2010), who find two stylised facts: first, the dollar-gold relationship is strong; and second, there is no consistent set of macroeconomic factors that appear to influence all precious metal markets in a similar manner. The relationship between gold and oil has recently attracted attention, with Baffes (2007), Sari, Hammoudeh et al. (2007), Cheng, Su et al. (2009), and Zhang and Wei (2010) finding mixed evidence as to the influence of oil on gold and vice versa.

Overall, therefore, there is a rich and rapidly growing body of research on the gold market. The research remains small scale, compared to the work on equities or bonds or FX, which is not representative of the importance of the precious metal markets actually or prospectively. ■

See next page for references.

Brian M Lucey is a professor of finance at the School of Business at Trinity College Dublin, where he is director of the MSc Finance programme. He studied at graduate level in Canada, Ireland and Scotland, and holds a PhD from the University of Stirling. His research interests include international asset market integration and contagion; financial market efficiency, particularly as measured by calendar anomalies; and the psychology of economics.

LBMA PhD Bursary

The LBMA is delighted to congratulate Mr Fergal O'Connor, the recipient of the first LBMA PhD bursary at Trinity College Dublin.

Fergal holds an MSc in financial economics from University College Cork, where he has also lectured. His precious metals research interests include the OTC market, pricing precious metal derivatives and hedges and havens. He will undertake his research with Professor Brian Lucey at Trinity College, Dublin.

The LBMA Executive will organise a series of meetings during the summer so that he can hear more about the bullion market and the interests of LBMA Members.

Ruth Crowell, LBMA Commercial Director and Professor Lucey celebrate the award of the bursary

References

Aggarwal, R. and B. M. Lucey (2007). "Psychological Barriers in Gold Prices?" <u>Review of Financial Economics</u> **16**(2): 217-30.

Aggarwal, R. and L. Soenen (1988). "The nature and efficiency of the gold market." <u>Journal of Portfolio Management</u> **14**(3): 18-21.

Baffes, J. (2007). "Oil spills on other commodities." <u>Resources Policy</u> **32**(3): 126-134.

Baker, S. A., and R. C. Van-Tassel (1985). "Forecasting the Price of Gold: A Fundamentist Approach." <u>Atlantic Economic Journal</u> **13**(4): 43-52.

Batten, J. A., C. Ciner and B. M. Lucey (2010). "The Macroeconomic Determinants of Volatility in Precious Metals Markets." <u>Resources Policy</u> **35**(2): 65-71.

Baur, D. G. and B. M. Lucey (2010). "Is Gold a Hedge or a Safe Haven? An Analysis of Stocks, Bonds and Gold." <u>Financial Review</u> **45**(2): 217-29.

Baur, D. G. and T. K. McDermott (2010). "Is gold a safe haven? International evidence." <u>Journal of Banking and Finance</u> **34**(8): 1886-1898.

Blose, L. E. (2010). "Gold Prices, Cost of Carry, and Expected Inflation." <u>Journal of Economics and Business</u> **62**(1): 35-47.

Bruno, S. and L. Chincarini (2010). "A Historical Examination of Optimal Real Return Portfolios for Non-US Investors." <u>Review of Financial Economics</u> **19**(4): 161-78.

Byers, J. D. and D. A. Peel (2001). "Volatility Persistence in Asset Markets: Long Memory in High/Low Prices." <u>Applied Financial Economics</u> **11**(3): 253-60.

Capie, F., T. C. Mills and G. Wood (2005). "Gold as a hedge against the dollar." <u>Journal of International Financial Markets, Institutions and Money</u> **15**(4): 343-352.

Cheng, W.-H., J.-B. Su and Y.-P. Tzou (2009). "Value-at-Risk Forecasts in Gold Market under Oil Shocks." <u>Middle Eastern Finance and Economics</u>(4): 48-64.

Christie-David, R., M. Chaudhry and T. W. Koch (2000). "Do Macroeconomics News Releases Affect Gold and Silver Prices?" <u>Journal of Economics and Business</u> **52**(5): 405-21.

Chua, J., G. Stick, and R. Woodward (1990). "Diversifying with Gold Stocks." <u>Financial Analysts Journal</u> **46**: 76-79.

Ciner, C. (2001). "On the Long Run Relationship between Gold and Silver Prices: A Note." <u>Global Finance Journal</u> **12**(2): 299-303.

Diba, B. and H. Grossman (1984). "Rational Bubbles in the Price of Gold." <u>NBER Working Paper: 1300. Cambridge, MA, National Bureau of Economic Research</u>.

Ding, Z., C. W. J. Granger and R. F. Engle (1993). "Long memory property of stock market returns and a new model." <u>Journal of Empirical Finance</u> **1**: 83-106.

Escribano, A. and C. W. J. Granger (1998). "Investigating the relationship between gold and silver prices." <u>Journal of Forecasting</u> **17**(2): 81-107.

Fortune, J. N. (1987). "The Inflation Rate of the Price of Gold, Expected Prices and Interest Rates." <u>Journal of Macroeconomics</u> **9**(1): 71-82.

Ghosh, D., E. J. Levin, P. Macmillan and R. E. Wright (2004). "Gold as an Inflation Hedge." <u>Studies in Economics and Finance</u> **22**: 1-25.

Hammoudeh, S., R. Sari and B. T. Ewing (2009). "Relationships among strategic commodities and with financial variables: A new look." <u>Contemporary Economic Policy</u> **27**(2): 251-264.

Hillier, D., P. Draper and R. Faff (2006). "Do precious metals shine? An investment perspective." <u>Financial Analysts Journal</u> **62**(2): 98-106.

Johnson, R. S. and L. A. Soenen (1997). "Gold as an investment asset - perspectives from different countries." <u>Journal of Investing</u> **6**(3): 94-99.

Khalifa, A. A. A., H. Miao and S. Ramchander (2011). "Return Distributions and Volatility Forecasting in Metal Futures Markets: Evidence from Gold, Silver, and Copper." <u>Journal of Futures Markets</u> **31**(1): 55-80.

Klement, J. and Y. Longchamp (2010). "Managing currency risks for global families." <u>Journal of Wealth Management</u> **13**(2): 76-87.

Lucey, B. M. (2010). "Lunar seasonality in precious metal returns?" Applied Economics Letters 17(9): 835-838.

Lucey, B. M., V. Poti and E. Tully (2006). "International Portfolio Formation, Skewness and the Role of Gold." <u>Frontiers in Finance and Economics</u> **3**(1): 49-68.

Lucey, B. M. and E. Tully (2006). "The Evolving Relationship between Gold and Silver 1978-2002: Evidence from a Dynamic Cointegration Analysis: A Note." <u>Applied Financial Economics Letters</u> **2**(1): 47-53.

Lucey, B. M. and E. Tully (2006). "Seasonality, Risk and Return in Daily COMEX Gold and Silver Data 1982-2002." <u>Applied Financial Economics</u> **16**(4): 319-33.

Ma, C. (1985). "Spreading between the gold and silver markets - is there a parity?" Journal of Futures Markets 5: 579-593.

Ma, C. and L. Sorensen (1988). "Arbitrage opportunities in metal futures markets." <u>Journal of Futures Markets</u> **8**: 199-209.

Matsushita, R., S. Da Silva, A. Figueiredo and I. Gleria (2006). "Log-periodic crashes revisited." <u>Physica A: Statistical Mechanics and its Applications</u> **364**: 331-335.

Moore, G. H. (1990). "Gold Prices as a Leading Index of Inflation." Challenge 33: 52-56.

Roache, S. K. and M. Rossi (2010). "The Effects of Economic News on Commodity Prices." <u>Quarterly Review of Economics and Finance</u> **50**(3): 377-85.

Sari, R., S. Hammoudeh and B. T. Ewing (2007). "Dynamic relationships between oil and metal commodity futures prices." <u>Geopolitics of Energy</u> **29**(7): 2-13.

Sari, R., S. Hammoudeh and U. Soytas (2010). "Dynamics of Oil Price, Precious Metal Prices, and Exchange Rate." <u>Energy Economics</u> **32**(2): 351-62.

Scherer, B. (2009). "A note on portfolio choice for sovereign wealth funds." <u>Financial Markets and Portfolio Management</u> **23**(3): 315-327.

Sherman, E. (1982). "Gold: A Conservative, Prudent Diversifier." <u>Journal of Portfolio Management</u> **Spring**: 21-27.

Sjaastad, L. A. (2008). "The price of gold and the exchange rates: Once again." <u>Resources Policy</u> **33**(2): 118-124.

Solt, M. and P. Swanson (1981). "On the efficiency of the Markets for Gold and Silver." <u>Journal of Business</u> **54**(3): 453-478.

Tandon, K. and T. Urich (1987). "International Market Response to Announcements of US Macroeconomic Data." <u>Journal of International Money and Finance</u> **6**(1): 71-84.

Taylor, N. J. (1998). "Precious metals and inflation." <u>Applied Financial Economics</u> **8**(2): 201-210.

Tully, E. and B. M. Lucey (2007). "A Power GARCH Examination of the Gold Market." <u>Research in International Business and Finance</u> **21**(2): 316-25.

Wang, K. M., Y. M. Lee and T. B. N. Thi (2010). "Time and place where gold acts as an inflation hedge: An application of long-run and short-run threshold model." <u>Economic Modelling</u>.

Worthington, A. C. and M. Pahlavani (2007). "Gold investment as an inflationary hedge: Cointegration evidence with allowance for endogenous structural breaks." <u>Applied Financial Economics Letters</u> **3**(4): 259-262.

Zhang, Y.-J. and Y.-M. Wei (2010). "The Crude Oil Market and the Gold Market: Evidence for Cointegration, Causality and Price Discovery." <u>Resources Policy</u> **35**(3): 168-77.

Not Seeking Perfection

A confusion of aims in Good Delivery

By Stewart Murray, Chief Executive, LBMA

George Orwell, in his essay* Reflections on Gandhi, *suggested that "the essence of being human is that one does not seek perfection". This also applies to Good Delivery bars.

In recent years, there has been an increasing level of interest in the physical quality of the large bars, both gold and silver, which are acceptable for storage in the vaults of the London bullion market. Some of these bars may reside in the vaults for only a short period before being sent to refineries for conversion into smaller bars (e.g. gold kilobars) or to fabricators for conversion into coins, jewellery, silverware or products for the electrical and electronic industries. However, in recent years, an increasing number of bars have been accumulating in the vaults because of the resurgent interest in precious metals on the part of investors. These investors are of various types. They include official sector participants, i.e. central banks, as well as private sector investors such as institutions, exchange traded funds and high net worth individuals. The metal purchased by many of these investors is held on an allocated basis, which means that individual bars are allocated to the investor who is then the owner of that bar. This is in contrast to the unallocated holding of precious metals where the investor merely has an entitlement to a certain number of troy ounces with the gold or silver being physically held by the bank or financial institution which is providing the account. It is perhaps this physical ownership of Good Delivery bars by investors, even though the bars are held by the various professional custodians in the London market, that has brought the question of bar quality to the fore. This was reflected in the programme for the recent LBMA Assaying and Refining Seminar in London. This included two presentations on physical quality, one from a vault perspective by Tony Evanson of Barclays and the other from a refiner's perspective by Serge Gambs (now a consultant who formerly worked for Metalor in Neuchâtel).

The LBMA's recent publication on the history of the Gold Good Delivery List back to 1750 showed how the rules on physical bar quality have evolved. It is not so much that the required standards have been raised, but rather that more and more words have been used to explain what is acceptable and what is not. The fundamental requirements for a Good Delivery bar have not changed at all and can be stated rather simply. Bars should be:

- safe to handle (i.e. no sharp edges);
- securely stackable (flat bottom surfaces, no wedge-shaped bars);
- of constant weight (e.g. no friable sharp edges which can cause a loss of metal or excessively indented marks or cavities which can cause an accumulation of dust, etc.);
- free from significant cracks, especially those that could indicate the presence of an internal cavity where water could be trapped;
- free from holes for the same reason; and free from layering (horizontal striations on the sides), though minor amounts of layering can be tolerated.

> ***"A perfection of means, and confusion of aims, seems to be our main problem."***
>
> ***Albert Einstein***

In relation to the markings, these have to:

- be clear and unambiguous;
- be durable in terms of handling in the vault;
- show the fineness to four significant figures (in the case of gold); and
- allow the bar to be uniquely identified (using a combination of the company's logo, the bar number and, if separate, the year.

Bars that conform to the above requirements will be accepted in the London markets as long as they have been produced by a refiner that is accredited by the LBMA and whose name and bars are included in the current version of the Good Delivery List.

The vault managers in the London system each have a responsibility to their owners to ensure that all the bars they accept for storage will meet the LBMA's physical requirements. In other words, they will reject bars that are defective. The immediate question is what is a defect (which we may define here as being a physical feature that is likely to result in a bar being rejected by a vault manager) and what is an imperfection (namely a minor deviation from what might be regarded as a totally perfect bar). Another term – 'artefact' – is also useful here. The dictionary definition of an artefact is something man-made. Some artefacts merely reflect the fact that metals are crystalline. For instance, when high-purity gold is cooled slowly, large individual crystals can often be seen on the top surface, leading some observers to conclude (wrongly) that they are some kind of defect.

Modern refiners generally take great care in the casting of their bars, but it is unfortunately a fact that some of the gold bars cast many years ago, particularly in the inter-war period in the United States, suffered from the fact that the refinery managers were under pressure to recast huge quantities of imported gold and the standards of quality control during the casting operation often suffered accordingly.

Today, many refiners take great pride in producing bars that are almost of jewellery quality – perfectly flat sides and bottom surface, with almost no discernible shrinkage on the top surface and a complete absence of the smallest imperfection. But this does not of course represent the minimum requirement that a Good Delivery bar must meet. Rather, GD bars are mass-produced articles, used as a means of storing value, and must therefore meet the basic requirements listed above. As long as the bars do satisfy these requirements, the vault managers in London will exercise pragmatism in deciding which small imperfections will be tolerated. There is no need for gold and silver bars to look as if they had been produced by Fabergé.

The process of producing a Good Delivery bar looks deceptively simple. The metal is melted, usually in an induction furnace (which may be capable of melting enough metal to cast 10 or 20 bars) and is then poured into an open mould made of cast iron or graphite. The LBMA banned the use of gated moulds (otherwise known as closed moulds) in 2008. Gated mould systems involve casting vertically into a cast iron mould with multiple chambers, usually three, which are closed by a gate, with the metal being fed through a gating system at the top. These were formerly used by refineries, particularly in China, and they had the advantage that the bar had a perfectly flat top surface. The problem with this casting system was that it was possible for the metal to solidify in the gate before the mould chambers were completely filled. This could result in

very large internal voids that were not always easily detected after the bar was removed from the mould and the casting sprue cut off.

With open mould casting, good physical quality depends on optimising the various casting parameters: preheating of moulds to the right temperature; the temperature of the molten metal; the most appropriate mould dressing; and the pouring speed. The mould dressing, which helps protect the mould from the stream of molten metal and which facilitates the removal of the solidified bar, can be of various types ranging from proprietary suspensions of refractory chemicals to carbon black, which is applied to the mould using a smoky acetylene flame. Mould dressings which can result in residual moisture in the mould may give rise to reactions with the molten metal, leading to the production of significant amounts of internal porosity. Pouring speed is another important determinant of bar quality. If the pouring speed is too low and particularly if the moulds are insufficiently heated, layering is likely to result. If layering is pronounced, to the extent that there are deep horizontal striations which can entrap dust or dirt between them, this will be grounds for rejecting a bar. There is often a small degree of layering in some bars, which will be acceptable.

In contrast to water, which expands when it freezes, gold and silver both contract by around 12%. This has important implications for bar casting. Given that the mould temperature is well below that of molten metal, the first part of a bar to solidify will be on the bottom and sides of the mould. As the metal then shrinks on solidification, the result is a depression on the top surface – sometimes with pronounced shrinkage rings, which are formed as the solidification front advances. Preheating the moulds effectively and applying a flame to the molten surface of the metal immediately after casting can moderate the amount of shrinkage and results in only a small depression on the top surface. At the other extreme, however, if there is insufficient metal left in the final stages of solidification, a shrinkage cavity (sometimes described as a crack) can form down the middle of the top surface of the bar. Cavities like this will always result in a bar being rejected because they can contain debris or even water (the latter having potentially disastrous consequences when such bars are remelted).

Moulds do not last forever. Cast iron is a very brittle material and the thermal shock experienced on the bottom of the mould where the stream of molten metal hits the mould surface will eventually result in the formation of a crater with the mirror image of a nodule being formed on the bottom surface of the bar. Initially, such protrusions are hardly noticeable but as the crater increases in size and depth, eventually there comes a point when the nodule will be so large that the bars will not stack safely. The shrinkage depression on the top of a bar actually allows for a minor nodule to be accommodated within it without affecting the stackability of the bar.

Some Typical Defects and Imperfections

One of the most common bar imperfections is known as a 'button'. This is often found on the bottom surface of a bar and it is thought to result from the presence of a film of air between the molten metal and the mould, which then collapses into a circle before escaping as a bubble and leaving behind a discernible, approximately circular area (see Figure 1) which is however clearly innocuous and requires no further investigation during inspection. However, in some cases, the formation becomes more plug-like in appearance (see Figure 2) and even though the explanation is almost certainly the same, vault managers will not take the chance in case this

Figure 1 - "Button"

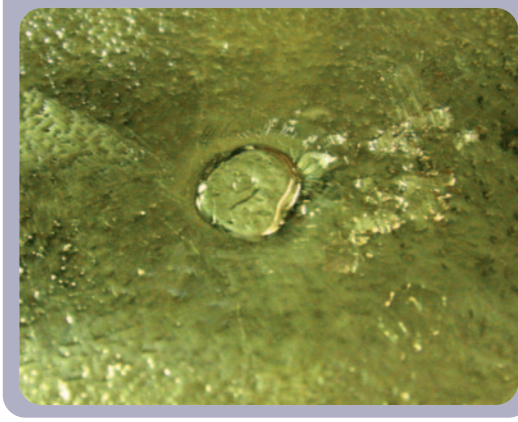


Figure 2 - Plug-like "button"

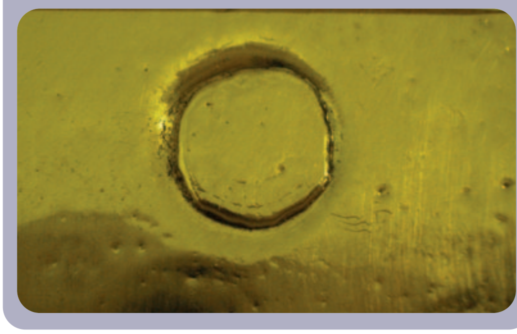
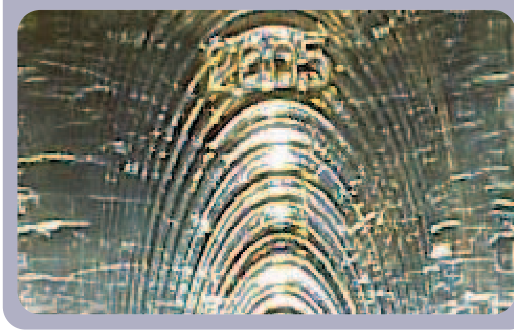


Figure 3 - Shrinkage affecting bar marks



really is a plug with some foreign body inserted in the metal underneath it. They will therefore investigate such plug-like features by means of an ultrasonic probe. Although effective, this is a time-consuming process and vault managers may exercise their discretion to reject whole batches of bars if they are found to contain a substantial number of plug-like defects.

The shrinkage depression is in itself a normal feature of a gold or silver bar cast in an open mould. However, if it is very pronounced, it can cause interference with the marks on the surface (this is particularly the case if the bar number or assay mark is positioned in the centre of the bar) and this may be grounds for rejection. The same thing applies if the shrinkage rings are very pronounced (see Figure 3) to the extent that it tends to make the bar marks difficult to read. On the other hand, vault managers will accept bars where the company stamp is partly missing as long as there is no doubt about the identity of the bar's manufacturer.

Holes of various types can be found on bars. They may result from some kind of interaction – for instance on the bottom surface due to the mould dressing, which often can be seen in the form of a honeycomb effect. On the top surface of silver bars, quite large holes may be found due to the fact that gases such as oxygen and nitrogen can dissolve in molten silver and are evolved during the final stages of solidification. Small shallow holes where there is no danger that something more profound is disguised will be acceptable, but the smallest pin hole may in fact lead to a larger internal cavity, and these will always be investigated and may therefore be grounds for rejecting a bar.

Health and safety considerations have become increasingly important in recent years and one important feature of bars that may cause a problem here is sharp edges, which may be produced for instance by grinding the top surface to improve its appearance or even sometimes by hammering. If a bar cannot be handled safely, it will be rejected. Hammering is a practice which was formerly used to remove or disguise surface defects. While reducing small asperities with a hammer may be acceptable, if its use is widespread on the surface of a bar, it is more than likely that this will be grounds for rejection.

The marks on a Good Delivery bar are obviously a vital requirement for an efficient vaulting operation. There are many ways in which marks can be inadequate to the extent that a bar will be rejected. The marks may be:

- missing (for instance an assay mark on a gold bar that only shows three digits would not be acceptable, as would a bar with a missing number or year stamp)
- shallow (which means that the mark is insufficiently durable to withstand any movement and restacking). For this reason, laser marking is not permitted and dot matrix pneumatic punching of the marks on the top surface will only be allowed if the resulting marks are at least as durable as those produced by conventional punching. On the other hand, dot matrix punching on the end surface of a bar, which is not subject to wear and abrasion in the vault, is more easily accomplished).

Tampering with any of the main marks (bar number, assay or year) will result in a bar being rejected. This includes overstamping to correct a previously applied incorrect number.

One imperfection which is tolerated is where a double image of a company logo has been produced by double stamping with the two stamps being slightly offset (as long as there is no doubt about the identity of the bar).

Future Work

At the 2009 conference, the LBMA circulated a Visual Guide to the Acceptability of Good Delivery Bars. Much of this focused on old US gold bars. Work on a second edition, which includes a wider coverage of different defects, including more silver defects, is underway. Any comments or questions on the above issues from refiners would be welcomed. ■

Regulation Update

Adding Gold to Europe's Liquidity Buffers

By Natalie Dempster, Director of Government Affairs, World Gold Council

The capital-adequacy requirements set out in the third Basel banking supervision accords, endorsed by G20 leaders in November last year, are a crucial means of preventing a repeat of the liquidity crisis that occurred in 2008.

There is, though, room for improvement in the design of the proposed rules. The rules would require banks to hold buffers of high-quality liquid assets, designed to cushion them from acute short-term funding strains. While the proposals are clearly a significant step forward in ensuring such strains are avoided, the definition of liquid assets is too limited: as they stand, the proposals only permit banks to hold cash, high-quality government bonds and high-quality non-financial corporate and covered bonds (the latter two with a 'haircut' – a discount – to reflect their higher credit risk).

In a world of hugely elevated sovereign-debt risk, there is a real danger that under the existing proposals banks would become overly dependent on government bonds for liquidity. In the last crisis, sovereign bonds were far from immune to liquidity issues, and given the current record levels of Western government debt and ongoing concerns over sovereign-debt downgrades (or even defaults), a repeat of this scenario would pose a real risk to the liquidity provisions.

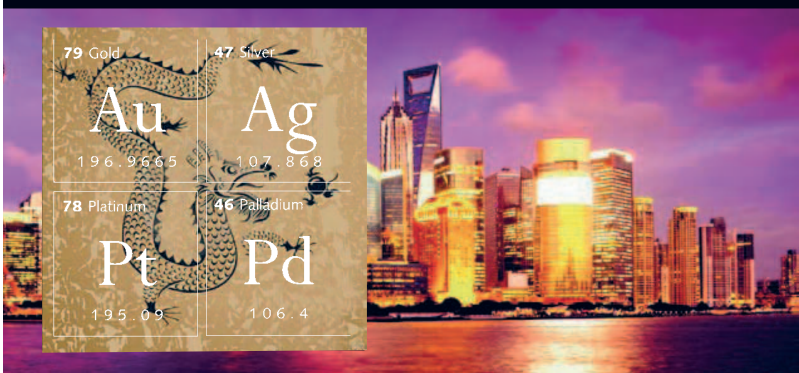
This issue could be remedied with added asset diversification. The more assets eligible for inclusion in the liquidity buffers, the less distortion the new regulations will cause in any one market and the lower the concentration risk for commercial banks.

The ultimate high-quality liquid asset is generally considered to be gold. That is because gold bears no credit risk: it involves no counterparty and is no one's liability. The risks associated with it are not correlated – not related – to the risks of other financial assets, making it an effective diversifier, a characteristic underpinned by its uniquely diverse demand base. At the height of the 2007-09 liquidity crisis, it was used extensively by fund managers to raise the cash necessary to meet margin calls – to add cash to their account with their broker – and to pay redemptions in order to stay in business. To date, however, gold has not been included under Basel III's liquidity proposals.

The Institute of International Finance summarised the curious nature of gold's omission when, last April, it submitted comments on Basel III: "It is striking that gold is not recognised as having liquidity value, whereas gold is virtually always liquefiable for cash and tends to benefit from a perceived 'safe haven' status".

The bottom line is that more debate is needed, as the current standards are short-sighted. In Europe, the European Commission, under the leadership of Michel Barnier, commissioner for the internal market, has begun work on the fourth capital-requirement directive (CRD IV), which will transpose Basel III into draft law. That will be reviewed by the European Parliament rapporteur Othmar Karas and the members of the European Parliament's economic and monetary affairs committee. There is still time to amend the regulation to reflect a reality recognised by government treasuries and individual households for centuries – that in bad times, as in good times, there is a market for gold. ■

The local forum for the global industry: Shanghai



The LBMA Bullion Market Forum 2011

26 May
The Pudong Shangri-La Hotel
Shanghai, China
www.lbma.org.uk

LBMA

The LBMA Bullion Market Forum 2011 focuses on issues in the bullion market in China, of interest to market participants both in China and in countries that trade with China.

This is the first time the LBMA has returned to China since the successful 2004 LBMA Precious Metals Conference in Shanghai. Given China's growing key role in global bullion markets, Shanghai will provide the ideal setting for the LBMA Forum. Managing Directors and other representatives of the London and Chinese bullion markets will be in attendance. Join the Forum to meet bullion market contacts both new and old.

金属

商品 \ 利率 \ 股票 \ 外汇 \ 能源 \ 天气

全面金属交易市场。

交易金属产品：

- 全球最为广泛、最具流动性的金属期货市场，包括基准 COMEX 黄金和白银合约
- CME 清算的安全及保障性已有 100 多年的历史验证
- 从世界各地都可连接到 CME Globex —— 最可靠的电子交易平台
- 通过 CME ClearPort 清算场外交易，减轻信用风险
- 实物交割和现金结算期货合约均可用

当今金属市场上的机会比以往任何时候都多。 CME Group 广泛的产品系列提供清算的财务保障以及灵活的交易解决方案。我们的贵金属、基础金属和钢铁金属产品共同组成了世界上最具流动性的金属期货市场。如今，在 COMEX 和 NYMEX 并入 CME Group 之后，这个全球领先的金属交易市场正在壮大。请访问 **www.cmegroup.com/metals** 了解更多信息。

CME Group

CME Group 是 CME 集团 (CME Group Inc.) 的商标。地球徽标、CME、Chicago Mercantile Exchange 和 Globex 是芝加哥商业交易所 (Chicago Mercantile Exchange Inc.) 的商标。CBOT 和 Chicago Board of Trade 是芝加哥期货交易所 (Board of Trade of the City of Chicago) 的商标。NYMEX、New York Mercantile Exchange 和 ClearPort 是纽约商业交易所 (New York Mercantile Exchange. Inc.) 的商标。COMEX 是纽约商品交易所 (Commodity Exchange, Inc.) 的商标。这些合约按照 NYMEX 和 COMEX 规则和条例挂牌交易，并受其约束。版权所有 © 2010 年 CME Group。保留所有权利。

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

Fortis Bank SA/NV and RBS Sempra resigned as Members effective 31 December, 2010 as their desks were taken over by BNP Paribas and JP Morgan, respectively.

ABN AMRO N.V. also resigned effective 31 December, 2010 as they closed their bullion desk.

Associates

On 21 March, Aster Commodities DMCC was admitted as an Associate.

On 28 March, World Gold Trust Services was admitted as an Associate.

Most recently on 6 April, Kuveyt Türk Katilim Bankasi A.Ş. was admitted as on Associate.

SGS Group resigned their Associate status as they would be unable to provide renewed sponsorship for their upcoming Associate review. The LBMA requires Associates to renew their sponsorship every three years, either through the original sponsoring companies or, if the Associate is no longer doing business with them, with new sponsors. Korea Zinc resigned their Associate status effective 31 December.

These changes brought the membership list at 6 April to a total of 123 companies, comprised of 59 Associates, 4 Affiliates and 60 Members.

GOOD DELIVERY LIST

The silver refinery of the Royal Canadian Mint, was added to the Silver List on 14 April, 2011. The company's gold refinery was listed in approximately 1919.

COMMITTEES

Management

The Management Committee met twice in the first quarter of 2011. As usual, the Committee's work largely consists of reviewing the reports from the Sub Committees and making decisions based on their recommendations.

Recognising the important role played by Ordinary Members in the work of the LBMA and in the market more generally, the Committee proposed to create an additional place on the Management Committee for a representative from an Ordinary Member. This would create a nine-person LBMA Management Committee consisting of five Market Makers, four Ordinary Members and the LBMA Chief Executive. The Committee also proposed that terms for Management Committee members be extended to two years instead of one, to ensure continuity in the membership of the Committee. These proposals were discussed and approved by an Extraordinary General Meeting of LBMA Members held on 12 April. All Committee members will step down at the AGM in June 2011 and the two year term for the Market Maker representatives will begin with effect from the election at that meeting. The Ordinary Members elected at the 2011 AGM will have a term of only one year. Thereafter, the two groups will stand down after alternating two-year periods.

The Committee approved the PAC's recommendation to donate to the British Red Cross – Japan Tsunami Appeal. The funds used for the donation derive from the fines which the Executive levies on Market Makers which fail to contribute to the daily GOFO and SIFO figures.

The Committee also approved the PAC's recommendation to provide a Bursary to Fergal O'Connor, a PhD student at Trinity College, Dublin. For further information, please see the announcement on page 13.

Regulatory Affairs

In response to the growing number of regulatory issues facing the bullion market, the Management Committee has set up a new standing committee of the LBMA, the Regulatory Affairs Committee. This Committee is chaired by Ed Wells of HSBC, with representation from the Bank of Nova Scotia – ScotiaMocatta, Barclays Capital, Deutsche Bank, Goldman Sachs, JPMorgan, Metalor and UBS. The Management Committee will be represented on the new Committee by Simon Churchill. Barbara Ridpath of the International Centre for Financial Regulation also accepted an invitation to join the Committee.

The Committee's primary tasks are to discuss and disseminate to the membership information on regulatory issues facing the bullion market as well as to recommend a response from the Association where appropriate. The Committee has met twice in the first quarter of 2011. The first meeting focused on responding to the US Securities & Exchange Commission (SEC) consultation paper on conflict gold regulation.

The Committee also discussed possible EU & US regulation of OTC derivatives. For more on regulation issues facing the precious metals market see the regulation update on page 18.

Physical

The Committee met three times in the first quarter of this year. In spite of the substantial number of companies achieving GD accreditation last year, there are still many gold and silver refiners which are hoping to achieve GD status. The Committee has spent some time discussing vault procedures as well treatment of button defects or "imperfections". This topic, among other, will be discussed at a meeting of vault managers in mid-May. For more on the assessment of bar imperfections in London, please see the article on page 15. This topic was also discussed at the 2011 Assaying & Refining Seminar (page 2). Another important topic relates to the levels of impurities in GD bars that are considered to be deleterious. The Committee has asked the Referees group to look into the question of whether these levels can be quantified for the guidance of GD refiners.

Charitable Giving 2011

As noted above, the LBMA Management Committee approved a donation to the Red Cross - Japan Tsunami Appeal.

Japan's important role in the international bullion market, from technical expertise to retail, is widely known. 10 gold and 13 silver Good Delivery listings are evidence of this. Many Members will remember the 2008 LBMA Conference in Kyoto. Our thoughts remain with our many friends living and working in Japan as they rebuild. In his editorial over the page, Bob Takai describes the atmosphere in Tokyo after the tsunami and the effects on the market.

Suggestions of charitable funds are welcome from all members of the market.

Public Affairs

The PAC has met four times in the first quarter of 2011. The primary focus of the first two meetings was on speaker selection for the LBMA Bullion Market Forum: Shanghai on 26 May. This Forum focuses on issues in the bullion market in China of interest to market participants both in China and in countries that trade with China. For more information, please see the announcement on page 18.

Most recently, the Committee has worked on the speaker programme for the LBMA's annual precious metals Conference, which is to be held this year in Montreal, Canada during the period 18-20 September. The LBMA is delighted to be working with the LPPM again in the arrangement for this premier industry event. The LBMA will also be working with the LPPM during the London Precious Metals session at the IPMI Conference in June.

Membership

The Committee met once during the past quarter when it discussed a new sponsorship regime for Member and Associate applications. The new system follows the Associate Review system by putting the onus on the applicant to ensure that letters of support are provided in good time by its sponsors. The Committee's main activity is of course vetting applications for membership and making recommendations to the Management Committee. As is implied by the list of new Associates above, this work is carried out mainly by email.

Finance

The Committee met in January to review the three-year forecast for income and expenditure. It also met in March to discuss the results of the annual audited accounts for 2010, which showed a substantial surplus mainly due to the success of the 2010 Conference in Berlin.

LBMA Annual General Meeting - 5.30pm on 22nd June

Armourers' Hall, London

The twenty-third AGM will take place at Armourers' Hall, Coleman Street in the City of London at 5:30 pm on 22nd June. All Members and Associates are cordially invited to attend. This will be an ideal opportunity to find out about the activities of the LBMA in the past year as well as to meet other Members during the drinks reception following the meeting.

The formal papers for the meeting (including nomination forms for the Management Committee) will be circulated in May to the LBMA contact at each Member and Associate company. All members of the Committee stand down at this AGM but may be re-elected.

Data Commercialisation

The LBMA's eight Forward Market Makers have committed to creating a Silver Forward Curve. The Market Makers will contribute their forward prices for silver at the close of business each day, consisting of 10 data points covering the period from one week to three years forward. The Market Makers have also committed to the creation of a Gold IRS Curve. The Market Makers will contribute their gold IRS prices at the close of business each day, consisting of 10 data points covering the period from one to 10 years forward. The data will submitted to the LME system as with the existing gold forward curve. The LME system will remove the high and low contributions for each of the 10 tenors and calculate the mean of the rest, which are the figures that will be published on Bloomberg, Thomson Reuters and others. Both the Silver Forward Curve and the Gold IRS Curve will be available in May 2011. ■

DIARY OF EVENTS

MAY

26

LBMA Bullion Market Forum
Shanghai
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

JUNE

11-14

IPMI 35th Annual Conference
San Antonio
T: +1 850 476-1156
mail@ipmi.org
www.ipmi.org

22

LBMA AGM
Armourers' Hall, London
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

SEPTEMBER

18-20

LBMA Precious Metals Conference 2011
In association with the LPPM
Montreal
T: +44 (0)20 1196 3067
F: +44 (0)20 1196 2112
varsha.peiris@lbma.org.uk
www.lbma.org.uk

Editorial

Editorial Comment by Bob Takai, General Manager, Energy Division, Sumitomo Corporation

At 2:46 pm on 11th March…

…I was at Sumitomo Metal Mining's office in Shinbashi, Tokyo to say greetings and to announce my change of assignment from 1st April. I was with James (Iwanaga) who was just about to ring upstairs from the ground floor lobby to say that we had arrived at reception.

Suddenly the earth shook rather strongly, in a way that I hadn't experienced before. I shouted to James, "James, an earthquake. Big one." He shouted back to me, "Bob, the phone is dead. This must be a very big one. We've got to run."

We dashed out of the building into the street. The tremor got bigger and bigger. I could see people getting out from the nearby buildings, all with scared faces, and all saying to each other that this earthquake is clearly different from the usual ones.

In the Shinbashi business district, there are many "pencil buildings", less than 10 stories high, built side-by-side on very small patches of land. Those buildings were shaking like trees being blown by a strong wind. The earth beneath my feet trembled even more strongly – I could hardly stand without holding onto the trees on the street. I felt like I was in a film in which Godzilla was walking down the street making the ground shake with each step.

After the initial tremor, which lasted for about a minute or two, we finished our scheduled meeting swiftly and started to walk towards the JR Shinbashi Station. We soon realised that our cell phones were dead. Almost everyone on the street was holding their phone in their hands, mumbling that it didn't work.

We came to a square where there is a big TV screen attached to the side of a building. On that sunny Friday afternoon around 4 pm, we saw horrifying scenes unfolding live on the screen. A flood of water was sucking in roads, bridges, cars, houses and people. I couldn't believe my eyes, thinking this must be a nightmare or some Hollywood disaster movie.

We decided to try to find somewhere where we could get more information about what was really going on, so James and I walked to the Shinbashi Daiichi Hotel, where we found the lobby full of people gathering information. Finally we found out that a mega earthquake had hit the northeast region of Japan, and a giant tsunami had swallowed the cities on the coastline. James luckily spotted a desk-top PC available for hotel guests and we finally connected to our office via email.

We found that our colleagues were stuck in the office on the 34th floor and the lifts were not working. We also discovered that all metropolitan transportation – trains, underground and buses – had stopped operating, and the streets were full of cars and taxies trying to escape from the city. Our employer soon announced that all employees should leave the office before it got too dark and cold to walk. Many of our colleagues walked down the stairs to the ground floor before marching much further back home to wherever they live.

James and I also had no other choice but to walk home. It was already around 6 o'clock on a Friday evening, the most pleasant time of the week under normal circumstances. The streets were full of people like us. They all looked so exhausted that they didn't even have the energy left to mourn their most unpleasant fate. We walked for about 4 hours, reaching home at around 10 pm, but we were the lucky ones because others who lived too far away to walk home had to spend a night in the office.

About a month and a half has passed since that tragic day. We now know that some 28,000 people are dead or missing and 4,900 people injured – mostly in the northeast region of Japan, which was hit by this magnitude 9.0 mega earthquake and the subsequent tsunami. To make matters worse, we have another crisis at the Fukushima Daiichi atomic power plant, where the vital fuel cooling system has been badly damaged by the tsunami and has leaked dangerous radioactive substances into the air and ocean. The beautiful coastline of the Fukushima Prefecture, about 240 km north from Tokyo, is facing the danger of being contaminated by nuclear substances.

Tokyo Electric Power, the owner/operator of the power plant, is now trying to contain the nuclear spill-over with the help of the Japanese government, but the severity of the incident has been raised to Level 7, which is the highest possible and as bad as the Chernobyl nuclear explosion of 1986. The battle with the radiation leakage is still going on and I do hope the whole mess will be sorted out as quickly as possible.

From the day the earthquake hit, there were outflows of money and people from Tokyo. A number of foreign companies, banks and embassies shifted their staff to cities in the western part of Japan like Nagoya, Osaka and Fukuoka or even transferred them to Hong Kong and Singapore.

Money also flooded out from Japanese Exchanges, including from commodities. TOCOM Platinum was hit by heavy selling from abroad. The price plunged from $1,790 to $1,660 within a week, and the forward premium also collapsed from $22/oz to only $2/oz. The Open Interest of TOCOM PT fell by as much as 37% from 62,000 contracts to 39,000 in just over a month. TOCOM Gold was also sold by foreigners and the Open Interest dropped by 19% from 120,000 to 97,000 by the end of March. The gold forward premium also plunged from $6/oz to $2/oz.

On the physical side, many base metals refineries were hit by the earthquake and tsunami. The domestic supply of silver, zinc and lead has been affected. The manufacturing plants of some Japanese car makers have also been damaged and some PGM supply contracts were said to have been cancelled during March.

Though we still have lots of things to do in reconstructing the damaged area, we believe this crisis could be an opportunity to change our society for the better. As the old Chinese proverb says: "Misfortune can be turned into a blessing".

Last but not least, I must tell you that in April I leave the bullion market after 31 years of involvement. My new assignment in Sumitomo is to head the Energy Division, where I will run the upstream oil and gas exploration business as well as the mid/downstream trading business. The assignment is quite challenging for me in the face of the ongoing nuclear disaster and the anticipated change in the structure of the Japanese energy market.

I would like to take this opportunity to thank all of you in the bullion market. It has been a pleasure as well as an honour for me to be part of the market for so long.

Arigato to all of you and Sayonara LBMA ! ■

Silver Industrial Demand Outlook Looks Bright

By Michael DiRienzo, Executive Director, The Silver Institute

Silver's industrial demand has greatly expanded its role in the global silver market in recent years. A number of factors have played a crucial factor in this growth, not least of which is silver's unique technical proficiency, which makes it suitable for a wide range of applications while also limiting the ability of industrial users to shift in favour of less-costly alternatives.

Silver is one of the best electrical and thermal conductors, which makes it ideal for a variety of electrical end uses, including switches, multi-layer ceramic capacitors, conductive adhesives, contacts and in silvered film in electrically heated automobile windshields. Silver is also used as a coating material for optical data-storage media, including DVDs. Silver is employed as a catalyst and used in brazing and soldering as well. It is also incorporated into health and medicinal applications given its natural antibacterial qualities.

You'll find silver in many of the electronic devices we use today, including cell phones, plasma-display panel televisions, personal computers and laptops. Silver is also incorporated into button batteries, water-purification systems, automobiles, and it is a component of the growing photo-voltaic industry, to name just a few of its applications.

Putting silver industrial demand growth into perspective (Figure 1), in 1990 it stood at 273 million troy ounces (Moz), representing a then respectable 39 percent of total fabrication demand. By 2000, the world total had grown by 100 Moz and saw its share exceed 40 percent for the first time. After the technology bubble burst in 2001, with silver industrial demand suffering a setback as a result, industrial offtake grew uninterrupted for the following six years. Although silver industrial demand declined after the global economic crises that began in 2008, by 2010 industrial demand had already recouped most of the lost output.

In fact, a healthy outlook for global silver industrial demand is forecast for the next five years according to a recent report. The report, *The Future of Silver Industrial Demand*, was produced by the precious metals consultancy, GFMS Ltd., on behalf of the Silver Institute, and it examines silver's industrial uses in detail through 2015.

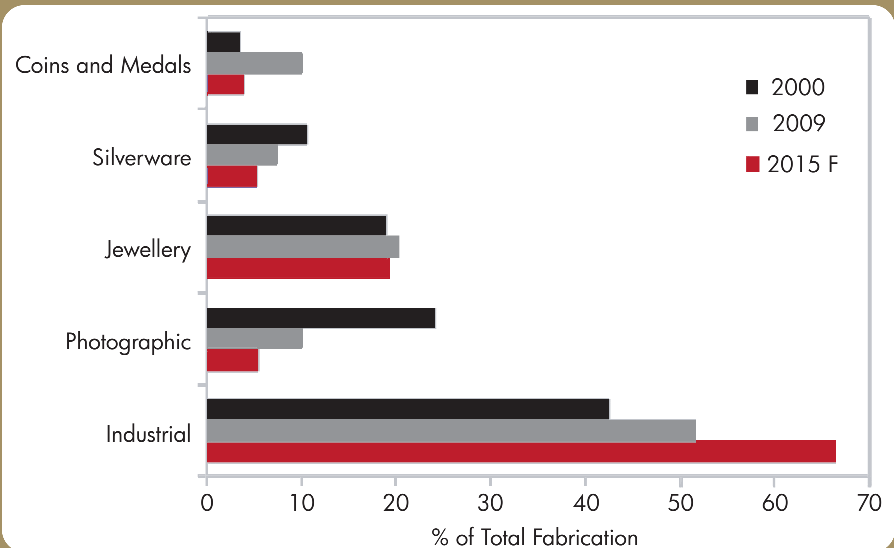
The report states that industrial uses of silver should rise sharply to 666 Moz in 2015, representing 60 percent of total fabrication demand that year – a 36 percent increase over 2010's figure of 487 Moz. The report maintains that stronger silver industrial demand in the US and Asia will be a key factor in driving growth in the global total through 2015, and healthy developing country demand especially in markets such as China and India will also be an important factor. Much of the forecast growth will come from established applications, such as silver's use in electrical contacts and in the photo-voltaic market.

The report also focuses on many new uses that rely on silver's antibacterial qualities, where the incorporation of silver makes the difference between an ordinary product and a unique one. Noteworthy in the report is the potential market impact of 11 recent applications that incorporate silver. These uses, which range from food packaging to radio-frequency identification tags to autocatalysts, taken together could exceed 40 Moz of industrial demand by 2015. Emerging end uses that benefit from silver's antibacterial properties or incorporate silver's electrical and thermal conductivity are expected to boost silver consumption through 2015.

The report demonstrates how buoyant silver industrial demand is, not only because of the lack of substitution, but also because of the wide range of established and growing new uses that make up industrial demand. ■

The Silver Institute is a non-profit international industry association headquartered in Washington, D.C. Established in 1971, the Institute serves as the industry's voice in increasing public understanding of the value and many uses of silver.

Figure 1 - Industrial Demand's Growing Importance



The Alchemist is published quarterly by the LBMA.
For further information please contact Alice Toulmin,
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The *Alchemist* is designed by Ion River.

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP®
Produits Artistiques Metaux Precieux

LBMA GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPM GOOD DELIVERY REFEREE

Alchemist

LBMA

The London Bullion Market Association ISSUE 63 August 2011

In this issue

Banro Corporation's Gold Mine Project – Legitimate Mining in the DRC

The issue of conflict minerals, including gold, in the Democratic Republic of Congo is being hotly debated in the wake of the US Dodd-Frank Act. Most discussions focus on illegal mining operations. But there is another side to gold production in the DRC. The photograph shows Banro Corporation's gold mine project at Twangiza in the east of the country which is expected to start commercial production in the fourth quarter of 2011. For further information see the Regulation Update – Supply Chain Due Diligence article on page 23.

It’s a precious world, we’ve got it covered.

MITSUI GLOBAL PRECIOUS METALS

Singapore • Hong Kong • Tokyo • London • New York

Singapore
80 Robinson Road,
#15-02,
Singapore 068898
Tel: 65 6372 8050

sgmpm@mitprecious.com

Hong Kong
Suite 1306,
Two Exchange Square,
8 Connaught Place,
Central,
Hong Kong
Tel: 852 2899 2026

hkmfo@mitprecious.com

Tokyo
2-1 Ohtemachi 1-Chome,
Chiyoda-Ku,
Tokyo
Tel: 81 3 3285 3407

tkfcs@dg.mitsui.com

London
4th Floor,
St. Martin’s Court,
10 Paternoster Row,
London EC4M 7BB
Tel: 44 20 7489 6761

ldnfo@mitprecious.com

New York
200 Park Avenue,
New York
NY 10166
Tel: 1 212 878 4122

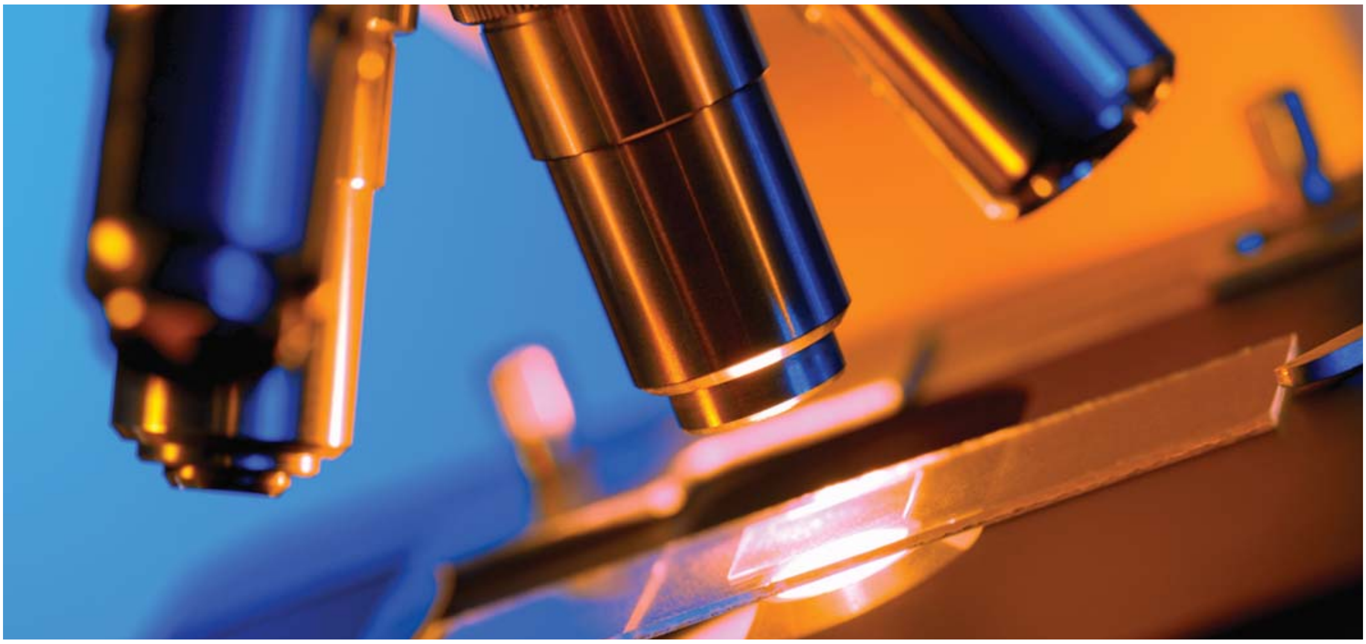
nymfo@mitprecious.com

All the metals – all the angles – all the time

REACH Challenges

- *Past, Present and Future*

By Violaine Verougstraete, Health and Alloy Manager, Eurometaux



A review of the challenges faced by industry and regulators with regards to REACH. REACH is the European Community Regulation on chemicals and their safe use. It deals with the Registration, Evaluation, Authorisation and Restriction of Chemical substances.

The entry into force of the REACH Regulation (EU Regulation No 1907/2006) has given significant impetus to non-ferrous metals science and to the development of tools, so as to be able to address its chemicals management requirements.

The need to maintain 'access to the EU REACH market' and the obligation to demonstrate 'responsible care' within a fixed timeframe have forced us to acquire a better understanding of the hazards and risks of our materials along their lifecycle, and across the exposures, uses and forms of the substances. Moreover, we had to take over the duty of ensuring the proper risk management of a substance, from cradle to grave, thereby going beyond the usual management area, e.g. a production site.

These obligations have prompted a huge effort to generate data since 2006; prompting industry to go back to existing knowledge – either publicly available or available as grey literature lying around in drawers – in an attempt to fill in the holes in the somewhat frightening 'data gap analysis' exercise. Strategies to make the best use of available data, to generate the missing information, and to develop methodologies and tools had to be agreed by groups of people sharing interests in one and the same substance, but who did not *per se* know each other. This all had to be done within a limited timeframe, which triggered some animated discussions on technical, cost-sharing and resource aspects.

Besides being an 'information generator', REACH has actually proven to be an incredible communication challenge, forcing the actors within the same supply chain to establish work and communication procedures, to exchange information on what constitutes the reality of the one and the other, and to ensure rapid and joint familiarisation with the subtleties of both the legal context of REACH and its implementation.

A significant number of metals and metal compounds had to be registered before the first REACH deadline (1 December 2010), which added considerable time pressure to these knowledge and communication challenges, resulting in some exhausted looks from consortia managers when we as Eurometaux – conveniently not registering – had to announce changes in guidance documents or in the tools.

All in all, the sector was able proudly to announce on 1 December that the non-ferrous metals industry had successfully

reached the first REACH registration deadline, and even to add, in the same enthusiastic sentence, that we were aware that this first deadline was only a first step and that other challenges would follow.

The post-2010 registration recovery period has actually been short. Not only because the sector had to get down to the business of preparing the registration of lower tonnage substances, but also because some of the challenges that we had foreseen in December soon began to show their faces, during "post-registration debriefings" organised by industry and in meetings with the REACH enforcement regulatory authorities.

Future Challenges

At this point, let me mention some of the challenges I see in the follow-up to registration at consortia, regulatory and site level. The focus will deliberately be on some of the technical challenges, which may in my opinion have an impact on the overall valuation of the data collection effort for registration.

To start with, the fact of having submitted a dossier for a substance on 1 December did not mean that the 'R' ('Registration') page of REACH could be turned. It remains an active process, requiring further attention and resources from consortia – not always planned for at the time when the consortia were set up. There will be the necessary updates of the submitted files linked to for example new information becoming available, or triggered by ECHA guidance changes and/or future reviews of REACH. In addition, some cosmetic updates of certain files are necessary. As a matter of fact, it should be realised that despite the general willingness and considerable efforts made, the dossiers submitted in 2010 have often only been "as good as possible" and could still have some weak spots when it comes to evaluating their completeness and defending a substance. Even in the non-ferrous metals sector, which has a solid tradition of co-operative work and is skilled at working together on multi-metallic risk assessment and classification projects, some differences among the dossiers can be detected. The approaches used are broadly similar, but the devil is lurking in the detail behind missing justifications, overly brief explanations, and sometimes inconsistencies between one compound and another. These flaws are a visible sign of the lack of time before the 2010 deadline, which did not enable all the metals to move together, at the same speed, towards complying with all the information requirements. Work has begun on addressing these shortcomings, but it will take time and will involve further resources that will have to be accounted for in consortia work programmes.

Within the last four years, industry has of necessity built up significant expertise in chemicals management and in 'thinking in applied mode'. We have been driven by the need to find pragmatic solutions to conceptual issues. Some examples are: a) how to deal with the aspects of 'data-rich substances' in a system designed for 'data-poor' and 'safety factor' approaches; b) the management of uncertainty versus precaution; and c) the consideration of aspects such as the massive form of the material or its 'complex composition'. To overcome defaults in guidance documents or overly predictive estimations generated by models that did not take account of metal-specific aspects such as natural occurrence, certain biological mechanisms and essentiality, we had to go back to the sector data and develop metal-specific tools and approaches. These 'solutions' have required discussions, exchanges of information, workshops and significant volumes of 'guidance notes' spread throughout all the consortia. Interestingly, this essential move to pragmatism has enabled more industry people to be involved in the technical discussions, previously left up to the metals science professionals. Compared with three years ago, both in associations and companies, many more industry people are now used to finding their way around the jungle of acronyms used in metals science; they understand what risk assessment means and question the practical implications of classifications, Derived No Effect Levels (DNELs) and Exposure Scenarios. The situation naturally still leaves room for improvement, but overall, knowledge has increased and been brought right up to date.

All in all, the sector was able proudly to announce on 1 December that the non-ferrous metals industry had successfully reached the first REACH registration deadline, and even to add, in the same enthusiastic sentence, that we were aware that this first deadline was only a first step and that other challenges would follow.

Regulators and Industry Experts – Communication Challenges

What about the regulatory bodies' experts? The setting up of REACH and its sequential implementation (focusing first on registration, then evaluation and finally authorisation) seem to have put certain regulators on hold to some extent. They had to prioritise the organisation of enforcement activities and resources for the further REACH processes. They also had to wait for the dossiers to become available, rather than being actively involved in brainstorming on technical issues in the dossiers as they may have been in the past. Regulators seem to have been somewhat out of the technical information circuit. On the other hand, several regulators seem to have made use of that registration time to better qualify what they are expecting from the REACH process and to identify the shortcomings of REACH that need to be addressed (e.g. combined effects).

There is an unfortunate timing incompatibility here: while we as industry are now awaiting their evaluation and would now be in a position to communicate on lessons learnt from registration, the REACH Regulators are now themselves faced with a huge amount of information, are subject to time pressure and are propelled towards 'learning by doing' within newly set-up committees, with new fields to address. 'Breaking in' the system and limited timeframes do not give regulators much opportunity either to familiarise themselves with the recent science and techniques built up for REACH by the various sectors, or to communicate on their registration period reflections.

This mismatch in schedules and priorities now leaves us with a kind of gulf between authorities and industry. For as long as both sides cannot meet and find means and dialogue on their respectively acquired expertise, this gulf could, in my opinion, adversely affect the discussions on the REACH dossiers and substances:

- First of all, despite the fact that we have never had as much information as now, the word 'precautionary' again seems to be

Your global partner for precious metals

Active in the physical and non-physical markets for almost a century, our award winning[1] dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

- Gold, silver, platinum and palladium
- 24h global service from hubs in Switzerland, the US, Singapore and the UK
- Physical precious metals custody in our Swiss vaults
- Coins: trading, handling and storage
- Structured products and tailor-made hedging solutions
- Full range of OTC derivatives
- Gold, Silver, Platinum, Palladium ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335

Stamford: +1-203-719 1178
Singapore:* +65-6495 3757
London:* +44-207-567 6758

*non physical only

Intended for investment professionals only

We will not rest UBS

www.ubs.com/preciousmetals

[1] Risk No.1 Dealer in Precious Metals – Gold Spot and Options, Silver Spot and Forwards in Risk & Energy Risk magazines' Commodity Rankings (2011)
No.1 for Precious Metals in Risk magazines' annual survey: 1st overall and 1st in six categories (2009) © UBS 2011. All rights reserved. 04441 Alch.

actively part of the debates. Without becoming familiarised with this mass of data, how to handle the latter and their limitations, the 'unknown' remains a barrier, whatever the amount of information that may impel regulators to remain precautionary or not to fully consider the data collected.

- There is a normal human tendency to go back to what is known rather than diving into the unknown, particularly when there is pressure to deliver a certain amount of work. This can now be observed in the choice of some substances to be scrutinised through REACH processes: some of these have already been extensively and exhaustively discussed in earlier or other Chemical Management systems, and the question then arises as to whether this will enable the objective of REACH to be achieved, i.e. to streamline and improve the former legislative framework.

Going Forward

It is imperative to avoid discussions hampering the added value of the efforts made by both industry and regulators. Although the roles and rules for the REACH actors are well outlined in the legal text and guidance documents, this does not prevent emotion and/or frustration from bubbling up. I believe that it is even more vital to overcome this communication challenge when considering that it was not possible to solve all the technical issues in risk assessment and classification before December 2010. In the metals sector, we still have ahead of us a number of important questions to solve, related for example to the characteristics of "complex materials", to testing difficulties and/or to data generation. We need a platform where we can discuss methodological proposals with experts involved in REACH committees and regulators involved in enforcement, so as to be able to propose the most appropriate safe use solutions to industry. Such platforms would allow us to discuss also forthcoming scientific challenges that are currently not covered by the scope of the REACH, such as the importance of diffuse emissions, mixture toxicity, etc.

It is imperative to avoid discussions hampering the added value of the efforts made by both industry and regulators. Although the roles and rules for the REACH actors are well outlined in the legal text and guidance documents, this does not prevent emotion and/or frustration from bubbling up.

Finally, we need to address the challenge of making the best use of the data generated at all levels, thinking beyond just the REACH-related steps. This is true for the EU, where companies are still exposed to legislation and regulatory 'hints' other than REACH. While efforts are being made at legislative level to solve some potential overlaps and to streamline the overall framework, responses should be found in the meantime to the practical questions that companies may pose: how to evaluate the REACH data, how to make the best use of the 'core tools' of REACH, such as Exposure Scenarios and DNELs, how these should be incorporated into day-to-day practice versus older references or tools proposed by other pieces of legislation. To address this could avoid filling cupboards once again with piles of unread papers.

Outside the EU, several jurisdictions are following with interest what is ongoing in the REACH scene, in order to both draw lessons and get information. This is an opportunity for some harmonisation of datasets and of technical aspects; and the OECD definitely plays a key role in this field.

Conclusion

REACH does not end with the successful submission of a completed registration dossier. This is only the beginning, in fact. A number of challenges and difficulties arise that could impact on the further process and its success. While these challenges seem to weigh preferentially either on the industry side or on the regulatory side, they concern all the REACH actors involved, and it is by solving them together that we shall guarantee the functioning and valuation of the efforts made up to now.

Violaine Verougstraete
Eurometaux

Violaine Verougstraete studied medicine and toxicology at the Catholic University of Louvain, did a DEA in Public Health and obtained her PhD in Public Health in 2005 from the Catholic University of Louvain (Belgium).

She worked as a researcher at the Industrial Toxicology and Occupational Medicine Unit of the Catholic University of Louvain for eight years. She collaborated in the EU Risk Assessment "Cadmium and Cadmium Oxide". Since May 2005, she has been working for Eurometaux as Health and Alloys Manager. She is currently co-ordinating the scientific activities and projects of Eurometaux, such as for example the HERAG and MERAG (risk assessment) projects, classification projects, and human toxicology and ecotoxicology-related activities.

LBMA Executive's Visit to Brink's New Vault

By Varsha Peiris and Collett Roberts, LBMA

In April 2011, the LBMA Executive embarked on a visit to Brink's UK's new bullion vault, located within the M25.

About Brink's

Brink's is a secure logistic organisation involved in various sectors including the transportation, handling and vaulting of precious metals, with over 150 years of experience. It is the third-largest bullion vaulting organisation yet the only one which is not a banking institution and the largest bullion carrier in the UK. Brink's Ltd (UK), headquartered in London, has been an Ordinary Member of the LBMA since April 1988.

First Impressions

We arrived at the secret location; Brink's new above-ground vault. Instantly, there was a distinction compared to its other vaults that we have visited when attending bar inspections. The new vault had a distinguished interior and exterior primarily due to the apparent massive investment in external security. This vault joins the ranks of Fort Knox, which also has above-ground vaulting facilities.

Once through security, we were met by Simon Churchill, Sales Executive. Simon introduced us to various senior members of staff, including Ms Orit Eyal-Fibeesh, Managing Director, and Phil Wright, Head of Security, who gave us the LBMA's exclusive tour.

The Need for Expansion

Before the long-awaited tour started, we were given an informative briefing as to why Brink's had taken this huge step to expand and build a new vault. Due to the uncertainty in the financial market, investors keen to invest their funds in a secure commodity had turned to the precious metals markets. In light of this perception, they had begun investing in gold because it was seen as a 'safe haven', and retail as well as wholesale transactions caused the demand for supply to rise significantly. Consequently, the transportation and storage of physical bullion had increased in line with this demand for physical stock. Having a vault above ground made dealing with the higher volumes and physical movement easier, due to the good access points.

Security

The vault took nearly two years to build, using impeccable security skills and materials to make it the highest European CEN grade that currently exists. Given its unique status of one of the first above-ground vaults in London, additional security was required. Layers upon layers of structural security precautions were included in the build. These were to prevent lorries from being able to ram the vault as well as to prevent intruders approaching by helicopter or catapult. This new vault actually has higher than the maximum security rating required, which leads us to think that it should be nominated for a scene in a James Bond movie.

The Tour

The Executive began their journey around the labyrinth of steel and high-tech security; it was like walking around a showroom. However, we were instantly reminded that we were in a bullion vault when we reached the stacks of silver bars. These bars were stacked on pallets to almost full capacity of the floor, which felt like the size of half a football pitch. The sheer depth and volume of the vault was very overwhelming.

After travelling through the silver and coin vaults, we finally reached one of the gold vaults. Working at the LBMA, we were

particularly excited to see the London Good Delivery bars. However, security at this point was of course extremely high. It was an amazing feeling to be standing so close to these gold bars that were locked up behind bars. So close, but yet so far!

During the tour, it was interesting to see both new and old machinery being used, such as the electronic weighing scales and the traditional beam balances. It was clear that although vault staff were keen to use the new electronic scales introduced in 2010, they were not quite ready to let go of the tried and trusted way of weighing bullion on the traditional beam balances.

Future Plans

After our exclusive morning tour, we were treated to a lovely lunch with all of our Brink's hosts and were given the background of Brink's Ltd as well as the opportunity to ask questions. It was interesting to learn about the importance for Brink's to maintain a perfect balance between storage volume and liability/security. We were surprised to learn that although this new vault had only been open for a very short period, it was already nearly full. Due to the continued demand for secure vaulting space, Brink's was already considering expanding by building another new vault.

The LBMA would like to thank all the staff at Brink's involved in arranging this visit and we are looking forward to our tour of their next vault!


BANK ONLY
GOLD
AND
SILVER
To support market maker requirements, we're improving the EBS trading experience.
EBS – where trades are made.
To find out more about bank only gold and silver trading on EBS, contact iebcommodities@icap.com
EBS
www.icap.com/ebspreciousmetals
ICAP

Loco London Liquidity Survey

LBMA Gold Turnover Survey for Q1 2011

By Stewart Murray, Chief Executive, LBMA

Background

At its meeting in April, the Management Committee agreed that the Executive should carry out a survey of Members' trading turnover in the loco London gold market. All members were asked to volunteer data, by providing, on a confidential basis, their turnover figures for spot, forwards and other transactions in the first quarter of 2011, with the data to be divided, if possible, between trades with other members and trades with non-members. As most readers will be aware, the LBMA is not an exchange and it does not require its members to report on turnover. The only statistics which are produced on a regular basis by the LBMA are the monthly clearing statistics, based on returns from the six clearing members which together form the London Precious Metals Clearing company. The only previous surveys of trading turnover were those carried out by the Bank of England in 1991, 1994 and 1996, and these were restricted to the LBMA's market makers.

So, why did the Management Committee decide to authorise a survey of members' gold trading? The answer lies in Europe or, more precisely, in the discussions within the Basel Committee on Banking Supervision on the new liquidity regulations for banks. The issue is whether gold should be considered as a "high-quality liquid asset" so that it can be included in the liquidity buffers that banks must meet. Although the Basel Committee did not recommend the inclusion of gold in these liquidity buffers, the implementation of the Basel guidance by national legislators and the European Union legislators may still allow gold to be included if they can be persuaded that gold is, indeed, a high-quality liquid asset. The World Gold Council has been pursuing this goal over the past two years and it requested the LBMA to carry out a survey of turnover in order to strengthen its argument that the gold market is sufficiently deep and liquid to justify gold's characterisation as both high quality and liquid.

Conduct of the Survey

All Members were sent the reporting form at the end of April, which asked for the data on spot and forward transactions to be divided into sales and purchases, and between members and with other counterparties. The third catch-all category of "other transactions" was also included to cover, for instance, options and bullion-related commodity swaps. The data to be included in the survey did not include deposits or loans.

From the outset, great care was taken to ensure the confidentiality of the data submitted. All Members were given an identifying code and asked to use that on the reporting form rather than their company name. The list of identifying codes was maintained in an encrypted file that only two members of staff had the password for. All members were given two data delivery points, which were the LBMA or the Bank of England.

Results of the Survey

Ultimately, 36 of the 56 Full Members involved in trading gold submitted returns. These included all of the LBMA's spot and forward market makers.

The results of the survey are summarised below in terms of daily averages during the period (Figure 1). Also shown for comparison are the clearing turnover statistics. It should be noted that the figures provided for trade between members were divided by two in order to avoid double counting. This is rather conservative in that many of the trades reported with members would be with members that were not themselves reporting. The figures for sales and purchases should be added to get an idea of the total trading turnover.

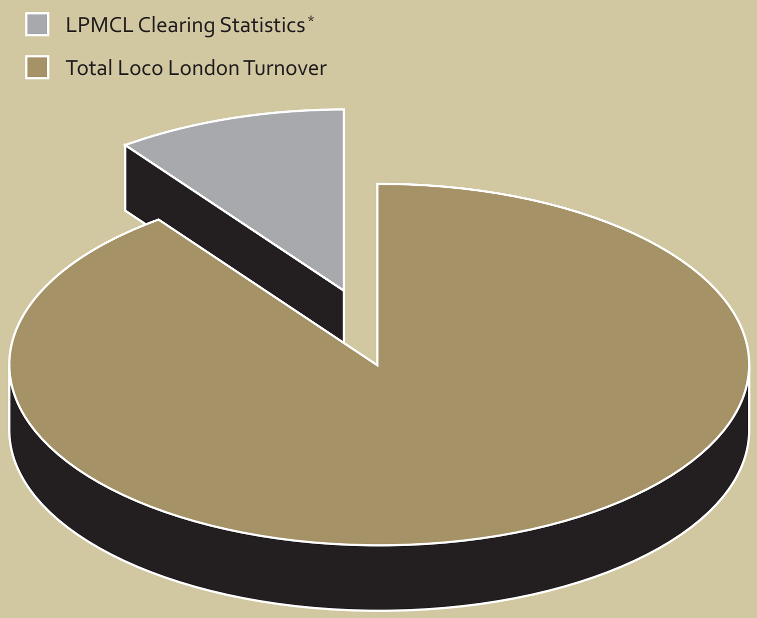
Figure 1 - LBMA Survey of Loco London Gold Turnover

	Q1 2011 Turnover*					
	'ooo ounces		Number of trades		Total Value (Sales)	Total Value (Purchases)
	'Sales	'Purchases	Sales	Purchases		
London Turnover	5,593,743	5,350,183	201,713	184,140	$7,754,438,081,578	$7,416,798,373,170
Total Loco London Turnover	10,943,926		385,852		$15,171,236,454,748	
LPMCL Clearing Statistics	1,183,459		122,303		$1,640,689,519,546	
London Daily Avg	173,713		6,125		$240,813,277,059	
Spot	89%	91%				
Forwards	5%	4%				
Other	6%	5%				

*Source: LBMA, Comprised of data from 36 LBMA Members, including all spot and forward Market Makers, for spot and forward Loco London transactions

Figure 2 - LBMA Survey of Loco London Gold Turnover - Q1 2011

Loco London Q1 2011 Turnover compared to Q1 LPMCL Clearing Statistics



LPMCL Clearing Statistics*

These figures contain:

- Loco London book transfers from one party in a clearing member's books to another party in the same member's books or in the books of another clearing member
- Physical transfers and shipments by clearing members
- Transfers over clearing members' accounts at the Bank of England.

Excluded from these statistics are:

- Allocated and unallocated balance transfers where the sole purpose is for overnight credit
- Physical movements arranged by clearing members in locations other than London.

It can also be seen that there is an approximately ten to one ratio between the turnover figures and the clearing statistics (Figure 2). It can be seen that spot transactions form the large majority of the total (around 90%), with forwards and other transactions each representing around 5%. The average daily trading volume in the London market in this period was 173,713,000 ounces or $240.8 billion (Figure 1).

Basel III Implementation –European Parliament Update

In July, the European Parliament voted unanimously to recommend that central counterparties accept gold as collateral, under the European Market Infrastructure Regulation (EMIR).

Natalie Dempster, Director of Government Affairs at the World Gold Council, commented on the vote:

"It is very significant that the European Parliament is putting its weight behind the argument that the unique characteristics of gold make it an ideal form of high-quality liquid collateral. We now look forward to the European Parliament and Council of the European Union upholding the inclusion of gold in the next stage of negotiations around EMIR, which will take place in September. The ratification would mark a significant step forward in redefining what constitutes a highly liquid asset under the Capital Requirements IV Directive too.

It is very significant that the European Parliament is putting its weight behind the argument that the unique characteristics of gold make it an ideal form of high-quality liquid collateral. We now look forward to the European Parliament and Council of the European Union upholding the inclusion of gold in the next stage of negotiations around EMIR, which will take place in September.

Market demand for gold to be used as a high-quality liquid asset and as collateral has been building for some time. In late 2010, ICE Clear Europe, a leading European derivatives clearing house, became the first clearing house in Europe to accept gold as collateral. In February 2011, JP Morgan became the first bank to accept gold bullion as collateral via its tri-party collateral management arm. Exchanges across the world, such as the Chicago Mercantile Exchange, are now accepting gold as collateral for certain trades and London-based clearing house LCH Clearnet has said that it also plans to start accepting gold as collateral later this year, subject to regulatory approval. As regulators from G20 countries demand that more OTC trading is centrally cleared and with the on-going world economic difficulties further eroding the creditworthiness of other forms of collateral, we expect to see increasing demand by clearing houses, exchanges and investment banks to use gold as collateral".

LBMA Summer Secondment

Emma Attridge, Bank of England

By Emma Attridge, who works on the Custody team at the Bank of England, recently completed a secondment to the LBMA in June 2011.

The major focus of my work as an LBMA Secondee was related to the LBMA Good Delivery system. This was particularly interesting to me, given my role in the Custody team at the Bank of England. The major projects I worked on were in relation to the development of the LBMA visual guide, including management of images and submission of images from the London vaults.

Internal Image Management of Good Delivery Images

The goal was to install, set up and customise software for use by the LBMA in the management and organisation of its image database, specifically Good Delivery related images. I learned about the types of defects and imperfections that can occur on GD bars, and was introduced to the administration interface of the GDL website. Using the defects section of the website as a reference point, I customised the Zoner software for future use by the Executive. I also worked with Rebecca Adamson, LBMA GDL Assistant, to formulate a system for accepting new images from vaults, processing them using Zoner and subsequently adding relevant images to the GDL website.

Vault Submission Process

I was given a brief to produce an Adobe format form to be used by vaults when submitting images of defects and imperfections to the LBMA. I liaised with the Bank of England (Barry Gull) during a trial period, to ensure the efficiency of the new submission form. The form is now in full use by all London vaults. The collection of these images assists the LBMA Executive in creating best practice guides for the Good Delivery system.

Loco London Survey of Turnover

The LBMA recently conducted a Survey of OTC Gold Turnover to assist with the WGC lobbying efforts to ensure that gold is treated as a high-quality liquid asset by the EU. I assisted by collating data as well as calling outstanding senior management level contacts at more than 30 companies to chase up their submissions. This resulted in a sizable submission from the LBMA Membership. For further details on the LBMA Survey of Turnover, please see the article on page 9-10.

I am grateful to have been given the opportunity to work at the LBMA for a month. The experience was valuable in terms of consolidating all previous knowledge I had of the LBMA's work and building upon it.

Meetings Attended

I attended the Physical Committee meeting, the Referees' Meeting and the LBMA AGM, which greatly assisted my understanding of the importance of the work I was doing. I also participated in the team's weekly staff meeting, where I gave a confident and clear summary of the work I had been doing to date.

My Time at the LBMA

I am grateful to have been given the opportunity to work at the LBMA for a month. The experience was valuable in terms of consolidating all previous knowledge I had of the LBMA's work and building upon it. I learnt a lot from all LBMA Executive members and appreciate the time that they gave up to share their knowledge with me and answer my questions. It amazes me that such a small team copes with such huge work volumes, especially when there are international conferences and meetings to attend. It has been great to meet so many market members and finally match names to faces! I would recommend the LBMA Secondment programme to anyone involved in precious metals trading who wants to delve into the complex issues challenging the London market and become engrossed in the Good Delivery List.

LBMA Secondments – Going Forward

Given the positive experience of Emma's secondment to the LBMA, both institutions have agreed to continue this successful programme. The LBMA is delighted to be welcoming Aelred Connelly of the Bank of England to be the next participant in the programme beginning in September 2011. Thanks to all involved, particularly Trevor Stone, Louise Lee, and of course Emma Attridge and Aelred Connelly at the Bank of England, for making this programme possible.

The Real Price of Gold

By Fergal O'Connor, LBMA Bursar and Dr Brian Lucey, Associate Professor of Finance, School of Business Studies, Trinity College, Dublin

The extraordinary flows into gold, from investors seeking safe haven or just prudent diversification coverage, have contributed to a sustained increase in its price to new nominal highs. Inevitably, this has given rise to a significant body of discussion on whether gold is a bubble or not. It can be useful to step back from the day to day and to think a little about what exactly a bubble is and is not. From the economic perspective, a bubble is an unsustainable level (which can of course be either positive or negative) of an asset relative to its 'true value'. Gold can be viewed as one of two basic asset classes. It may be thought of as a currency or a commodity. Which is the truer representation is important if we view some of the current discussion about whether gold is currently in a bubble phase.

In addition, we must think about 'rational' and 'irrational' bubbles. Rational bubbles are situations where investors know the size of the bubble, and have only differing expectations about its duration, but share a common model of the fundamental and bubble component of prices. Again, however, we require a model of the fundamental value, as well as some heroic and unrealistic assumptions about investors' expectations. For some recent studies on rational bubbles, the reader is referred to Fukuta, 2002 or Cuoado, Gil-Alana, & de Gracia, 2005.

Many articles argue that gold is in a bubble phase by looking at its real (i.e. inflation-adjusted) value and that it is currently far above its long-run average in relation to all major currencies, e.g. The Economist blog 27 July, 2011 – *Turning gold into dross*. These turn gold's nominal dollar price into a real price using the US inflation rate. In this view, gold is a commodity that happens to be denominated in US dollars and thus whose price can be deflated in the same way as any other commodity. If gold is purely a commodity then its real value in any currency over time can be found using its US dollar price, the exchange rate between the dollar and the domestic currency along with US inflation. But that means that we cannot easily, if at all, determine the existence of a bubble in gold prices, as the bubble component can be either the exchange rate or the dollar value, or indeed the price itself. Research on commodity bubbles, such as the papers by Sornette, Woodard, & Zhou, 2009 on oil or Jirasakuldech, Campbell, & Knight, 2006 on real estate, use duration dependence models (such as that introduced by Chan, McQueen, & Thorley (1998)), which while empirically easy to implement, work on the basis that every asset must show fluctuations in price and thus runs of upward-only price movements cannot continue indefinitely.

However, if we view gold as a currency, then it should have its own inflation rate. Why should it have the same inflation rate as any other currency? Inflation is the rate at which the purchasing power of a consumer erodes over time. Merely picking the dollar's inflation rate as it is the currency that gold is generally traded through is arbitrary and a historic relic. But since gold is not in general use day to day as a method of exchange, there is no easy way to calculate an inflation rate of gold. Gold is used as a method of exchange in certain states in America (e.g. Utah), but in a way that seems to preclude measuring its inflation-adjusted value. In these states, purchases made using gold are in practice made at the goods' dollar value, not gold weight, and are paid for in gold at its market price relative to the dollar. So a purchase price of $1 for an item is worth about 1/1,700th of an ounce of gold at today's values. If the market value of gold increases by $100 dollars an ounce, only 1/1,800th of an ounce is needed to buy the item. This however does not indicate that gold has suffered a deflation, or the dollar an

inflation. It simply means that the exchange rate of the dollar and gold has changed. It could just as easily be due to a change in relative yields, or some other fundamental determinant of gold and/or the dollar's value.

If Purchasing Power Parity held in relation to the dollar/gold exchange rate then, in the medium term, the amount of gold in ounces relative to dollars would be stable when their relative rates of inflation were taken into account. But is it possible to measure the gold inflation rate? To do this, we would need to observe an area where goods prices were denominated in ounces of gold *directly*, not through another currency that will have its own rate of inflation. No such market exists to our knowledge.

Conclusion

The fact that the inflation rate of gold is not directly observed does not prove that gold is or is not in a bubble phase. But the real dollar/gold exchange rate can only be shown if we can observe changes in the relative purchasing power of gold and the dollar, using their respective rates of inflation, as well as the dollar/gold exchange rate. Part of the puzzle is missing. That is not to say that gold will always increase in price. It is to say that it may well be an inherently heroic task of measurement to determine same.

Fergal O'Connor
is the 2011/2012 recipient of the LBMA Bursary and a PhD student at Trinity College Dublin.

Dr Brian Lucey
is a Professor of Finance at the School of Business at Trinity College Dublin, where he is director of the MSc finance programme. He studied at graduate level in Canada, Ireland and Scotland, and holds a PhD from the University of Stirling. His research interests include international asset market integration and contagion; financial market efficiency, particularly as measured by calendar anomalies; and the psychology of economics.

References

Chan, K., McQueen, G., & Thorley, S. 1998. Are there rational speculative bubbles in Asian stock markets? ***Pacific Basin Finance Journal***, 6(1-2): 125-151.

Cuoado, J., Gil-Alana, L. A., & de Gracia, F. P. 2005. A test for rational bubbles in the NASDAQ stock index: A fractionally integrated approach. ***Journal of Banking & Finance***, 29(10): 2633-2654.

Fukuta, Y. 2002. A test for rational bubbles in stock prices. ***Empirical Economics***, 27(4): 587-600.

Jirasakuldech, B., Campbell, R. D., & Knight, J. R. 2006. Are there rational speculative bubbles in REITs? ***Journal of Real Estate Finance and Economics***, 32(2): 105-127.

Sornette, D., Woodard, R., & Zhou, W.-X. 2009. The 2006-2008 oil bubble: Evidence of speculation, and prediction. ***Physica A: Statistical Mechanics and its Applications***, 388(8): 1571-1576.

LBMA Bullion Ma

The local forum for the globa

The LBMA Bullion Market Forum – Shanghai

With 196 delegates taking part in this one-day event, the LBMA Bullion Market Forum – Shanghai was a great success. Participants included the bullion department Managing Directors from all the major Chinese banks as well as significant international participation. Our thanks go to all speakers, delegates and exhibitors for participating in this prestigious event. As compared to the LBMA's annual conference, which focuses on issues facing the entire international bullion market, the LBMA Bullion Market Forum – Shanghai focused primarily on the local Chinese bullion market. The LBMA has held previous Bullion Market Forums in Delhi and Moscow, and is looking to hold a future event in New York.

rket Forum 2011

l industry: Shanghai

Management Committee Delegation to China

Thanks also to all those members of the LBMA Management Committee who took part in the MC Delegation to China. This delegation was made up of the following participants: Kevin Crisp of Mitsubishi Corporation International (Europe) Plc, Philip Aubertin of UBS, Simon Churchill of Brink's Limited, along with Stewart Murray and Ruth Crowell of the LBMA. The delegation was a strong group and had many successful and important meetings. These included meetings in Beijing and Shanghai with the China Gold Association, China National Gold Group Corporation, People's Bank of China Financial Markets Dept, Shanghai Futures Exchange and Shanghai Gold Exchange.

The local forum for the global industry: New York

The LBMA Bullion Market Forum 2012

Spring 2012

As compared to the LBMA's annual conference which focuses on issues facing the entire international bullion market, the LBMA Bullion Market Forum – New York will focus primarily on the US bullion market. The LBMA has held previous Bullion Market Forums in Delhi, Moscow, & Shanghai and is looking forward to holding its 2012 event in New York.

New York, USA
www.lbma.org.uk

LBMA

DIARY OF EVENTS

SEPTEMBER

18-20
LBMA Precious Metals Conference
Montreal, Canada
Tel: +44 (0)20 7796 3067
conference@lbma.org.uk
www.lbma.org.uk

27-28
Global Mining Investment Conference
London, UK
Tel: +44 (0)207 754 5994
ros@objectivecapitalconferences.com
www.objectivecapitalconferences.com

OCTOBER

4
LME Dinner
London
www.lme.com

25-27
World Commodities Week 2011
London
Tel: +44 (0)20 7092 1000
enquiry.uk@terrapinn.com
www.terrapinn.com

25-28
China Investment Summit 2011
London
Tel: +44 (0)20 7092 1000
enquiry.uk@terrapinn.com
www.terrapinn.com

FEBRUARY 2012

6-9
Mining Indaba Conference
Cape Town, South Africa
Tel: +1 859 746 5700
info@miningindaba.com
www.miningindaba.com

23
LBMA Annual Party
London, UK
Tel: +44 (0)20 7796 3067
events@lbma.org.uk
www.lbma.org.uk

MAY

17-19
World Mining Investment Congress
London
T: +44 (0) 207 827 4171
sarah.pegden@terrapinn.com
www.terrapinn.com

JUNE

9-12
IPMI Conference
Las Vegas
www.ipmi.org

The Shanghai Gold Exchange and its future development

By WANG Zhe, Chairman and President of the Shanghai Gold Exchange

The following is an edited version of a keynote speech made at the LBMA Bullion Market Forum in Shanghai on 26 May 2011.

At the 2004 LBMA Conference in Shanghai, Central Bank Governor Zhou Xiaochuan proposed a 'three transformations' strategy, which led the way for the development of the Chinese domestic gold market. It is an honour that six years later the LBMA has decided to return to Shanghai to host such a high-profile forum.

Since then, the Shanghai Gold Exchange (SGE) has embarked on a fast-paced development. Today, I am here to give you an introduction to the services of the Exchange and share our experiences. I will give a brief history of the development of the Exchange over the past six years, and mention some ideas about its future development.

History of the SGE

The Exchange was officially opened on 30 October 2002. It currently has 163 members, including major domestic commercial banks, five foreign banks, and firms involved in gold production, consumption and investment. It has nearly seven thousand institutional clients and over two million individual clients. The Exchange has twelve types of contract in gold, silver and platinum. It undertakes other business including spot physical, deferred trading, forwards and individual physical investment.

Since 2004, the Exchange has continued to develop. Its trading volume has increased at a rate of about 40% per year, increasing even more quickly in 2008 and further in 2010. In that year, trading volumes of gold and silver reached new records: 6,051 tonnes of gold at a value of RMB 1,615.78 billion, 73,615 tonnes of silver at a value of RMB 386.33 billion and 54.69 tonnes of platinum at a value of RMB 19.84 billion. In 2011, the market maintained rapid growth and the variety of silver contracts grew at an explosive rate.

By the end of April this year, the Exchange had traded 1,909 tonnes of gold, 73,569 tonnes of silver and 20.88 tonnes of platinum, a total transaction value of more than RMB 1 trillion.

From the opening of the Exchange in 2002 to the end of April this year, more than 20,000 tonnes of gold, nearly 170,000 tonnes of silver and 300 tonnes of platinum were traded. The total transaction value exceeded RMB 5 trillion.

Chairman Wang Zhe (far right) at the LBMA Bullion Market Forum - Shanghai 2011.

Market features

The Exchange can be described in terms of the following six major features.

Spot transactions and physical demand

The Exchange focuses on serving the spot market to meet the domestic market's requirement for large amounts of physical bullion. China has rapidly become the world's largest gold consumption market. In 2010, gold spot transactions grew 28% to reach 1,626 tonnes and the amount of physical gold delivery at the Exchange reached 837 tonnes, a new record, which guaranteed the leading position of the Exchange in the domestic gold spot market.

Deferred trading and derivatives

One of the important points of the 'three transformations' strategy is the transformation of the domestic gold market from a commodity market to a financial derivatives market. The Exchange strives to explore new products as well as strengthen its spot market. In 2004, the Exchange launched a gold deferred trading product, which became extremely popular. The turnover of gold deferred trading grew 36% to reach 4,423 tonnes in 2010. Gold deferred trading has accounted for over 60% of the gold market for three consecutive years. In 2010, it accounted for 73% of the market. In addition to gold, silver deferred trading has grown rapidly during the last three years. In 2010, silver deferred trading accounted for more than 96% of the total trading volume of

73,615 tonnes. All silver trading in the first four months of this year was deferred trading. As you can see, deferred trading contracts have become core products of the Exchange.

Price discovery and synchronisation

With the gradual maturity of the price discovery function and pricing mechanism, the Exchange's gold price has dominated the domestic market. Now that five further commercial banks have been awarded physical gold import and export licences, commercial banks import a substantial amount of gold. The Exchange plays a critical role in minimising the price difference between the domestic and overseas markets. Although the dramatic moves in the international gold price last year led to a surge in domestic demand, which pushed up the domestic gold price and widened the price difference, overall the domestic price now moves in synchrony with the international price. The price difference between the two markets has shown a clear seasonal pattern. In the peak season leading up to Chinese New Year, from November to January, the price difference between the two markets could be as wide as two to three yuan per gram. However, from April to August the difference was narrower, within one yuan per gram.

The lending market is an integral part of the international gold market system. In a mature gold market, participants can lend gold and finance at the market lending rate, in order to carry out market transactions more easily.

Members of the Exchange

Drawing on the experience of the international market, the Exchange has supported its financial members (commercial banks), benefiting from their abundant financial resources and strength. Bank members' proprietary trading grew 29% in 2010 to reach 2,094 tonnes and client trading grew 56% to reach 277 tonnes. Currently, the commercial banks account for 58% of the market and more growth is anticipated.

Apart from banks, general members also play an important part in the market. In 2010, their proprietary gold trading grew 12% to reach 1,171 tonnes and clients' gold trading reached 1,356 tonnes, a slight decrease from the previous year. Proprietary silver trading grew 104% to reach 1,562 tonnes; clients' silver trading grew 83% to reach 19,876 tonnes. Though the institutional clients are still the most important participants in the market, the market share of individual investors has soared in recent years. In 2010, individual gold trading volume reached 1,154 tonnes, an increase of 163%. The number of individual investors increased 93% to 1,778,500. The share of individual gold trading increased from 9% to 19%. The amount of individual silver transactions reached 49,738 tonnes, more than ten times as much as in 2009. During the first four months of this year, the number of individual investors kept growing rapidly and now has exceeded two million. The Exchange has become the main channel of investment of physical precious metals, fulfilling the needs of domestic residents.

Night trading session

The SGE was the first to offer a night trading session in the domestic financial market. The night session starts at 9pm and ends at 2.30am the next morning (Monday to Thursday). It overlaps with the afternoon session in London and the morning session in New York, which is beneficial for the synchronisation of markets and enables domestic investors to arbitrage across markets. Since the official launch in November 2005, the night session's trading volume has increased every year, particularly in 2008 when trading volume quadrupled compared to the previous year, accounting for one-third of total trading volume. In 2010, night session total gold turnover rose 24% to reach 1,943 tonnes, accounting for 32% of the total gold trading volume. 37,553 tonnes of silver were traded, an increase of 352%, accounting for 51% of total silver trading volume. The Exchange is now considering the launch of a Friday night session to fulfil market needs.

Foreign members

Over the past two years, the Exchange has admitted HSBC, Standard Chartered Bank, the Bank of Nova Scotia-ScotiaMocatta, Australia and New Zealand Bank and Credit Suisse as members. The SGE is the first and only exchange in China with foreign membership. Not long ago, applications from Barclays Bank and United Overseas Bank were approved. Very soon they will become members of the Exchange as well. Besides that, many well known international commercial banks, including JP Morgan Chase, Deutsche Bank, Standard Bank and UBS have shown an interest or are applying to become foreign members of the Exchange.

Foreign members of the Exchange play an increasingly important role in the market. From September last year, foreign banks' proprietary trading grew rapidly. In 2010, the transaction volume of foreign member banks was 168 tonnes, almost 5 times of the previous year, accounting for 8% of the total proprietary trading.

The next step

The gratifying development of the gold market presents both opportunities and challenges. It is worthwhile to think about how we can take advantage of the opportunities to innovate and sustain the growth of the market, while seeking co-operation with international markets for mutual benefit. We would like to propose the following ideas.

Further improvements in the Exchange's inter-bank price quoting system

The Exchange formally launched the price quoting system in March, allowing commercial banks to cover paper gold exposure and fulfil the specific needs of OTC forwards. The Exchange combines the trading models of price bid and price quote to nurture and support the domestic gold market makers and to attract more investors into the market to satisfy their multi-dimensional trading needs. In the future, as the price quoting system is developed and perfected, we are confident that we are forging a useful tool for the bidding market.

We have also realised that, compared to the wide variety of personalised products in the international gold market, such as spot, forward and swaps, our current price quoting system provides limited products and services, which are mainly focused on physical transactions and limited gold lending services. Therefore we need to further improve the price quoting system, enrich the variety of products, enhance their functions and gradually adopt international trading products, to meet the banks' individual needs.

Establish the gold lending market and form the lending rate.

The lending market is an integral part of the international gold market system. In a mature gold market, participants can lend gold and finance at the market lending rate, in order to carry out market transactions more easily. In the domestic market, due to the late start,

COMMERZBANK

What you need is a global partner in precious metals

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium, Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg CBGL<GO>
Reuters CBGL
Direct contact +352 477 911 2540

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request. Copyright © Commerzbank AG 2011

Achieving more together

the scale of the gold lending market is still relatively small, while a market lending rate has not yet been established. However, in recent years, with the support of the Exchange, the domestic gold lending market has made great progress. Market players have gradually become more diverse. Foreign banks, domestic commercial banks and enterprises are actively involved. In 2010, the total commercial bank gold lending grew 68% to reach 112 tonnes. The potential of the lending market is very promising.

Hence, the Exchange should take the opportunity and accelerate the establishment of the gold lending market. It should support more commercial banks to provide gold lending services, attract foreign banks and refinery companies to join, and facilitate the mobility of domestic physical gold. What is more important is to establish a gold lending rate in China as soon as possible, to encourage inter-bank gold lending and assist small and medium enterprises, thus to improve market functions.

Build a gold derivatives market.
The first domestic gold ETF - Lion Global Gold Fund was launched at the end of last year, which has gained much attention at the Exchange. On the one hand, we intend to further reduce the trading hurdle and the investment threshold of existing products in response to the impact of fund companies' ETF products on the market system; on the other hand, we have accelerated the steps to study gold bonds and ETF products as an important reserve to explore new products and promote innovation.

Admit more influential international banks and gold dealers as members
The gold market is a global market. However, our gold market is not very internationalised. In recent years, we have introduced some influential foreign banks and endeavoured to communicate with foreign markets. But this is just the beginning. Next we will continue to increase the number of foreign members and introduce more powerful foreign financial institutions and gold dealers into our market.

Meanwhile, we will further improve our quality of service and provide foreign members with better market environment to stimulate their enthusiasm. The Exchange will communicate and co-ordinate with PBOC actively to address the concerns of foreign members, particularly the foreign exchange allowance and issues of importing and exporting. The Exchange will encourage our foreign members to play a greater role.

Connect the domestic physical certification system with international markets.
There is a comprehensive physical certification system in the London gold market, which is a globally recognised physical delivery criterion and plays an important role in the promotion of globe gold trading. At present, although China's gold quality certification system has met the standard of the LBMA in both specifications and standards, and some rules are even stricter than those of the LBMA, there is no common admissible mechanism of international certification which can apply to domestic physical gold. This has handicapped the development of domestic market. This fact made us realise that we should co-operate with the LBMA to connect the two physical certification systems as soon as possible, so that gold in China can be accepted in the international market and we can supply gold more efficiently to gold market players both at home and abroad.

Now, we are in a special historical time full of opportunities. In the future, the Exchange will further its marketing innovation, enrich the variety of trading models used and promote improved functioning of the market.

Increase communication between the two markets and make regular visits.
The London gold market has a history of over a century. Despite the fact that the London bullion market uses an OTC model which is totally different from the Exchange's model, there are still a lot of valuable experiences we can learn from the London gold market in areas of market management, product innovation, risk control, physical delivery, warehousing and logistics. During the last two years, I have been to London twice to study the specific subject of the tax system, OTC price quote model, and lending market at the London gold market. And I have learned a lot. Facing the rapid development of the market, I feel it is necessary to set up a regular visiting mechanism between these two markets to understand new developments and market information relevant to each other.

Now, we are in a special historical time full of opportunities. In the future, the Exchange will further its marketing innovation, enrich the variety of trading models used and promote improved functioning of the market. We will enhance our core competitiveness and increase our influence in the international gold market.

**Wang Zhe
Chairman & President,
Shanghai Gold Exchange**

Mr. Wang Zhe, *is a member of the CPC and was born in August, 1960. He has an MBA degree. He started his career in July, 1984 and currently serves as the Chairman and President of Shanghai Gold Exchange. He spent four years studying at Jilin Trade & Commerce College before starting his career at the Currency Issue Division and General Office of the People's Bank of China from July, 1984. After that, he served as the General Manager of China Gold Coin Corp. (Shen Zhen) Company from December, 1991 to March 1995. From March 1995 to April 1999, he served as the Deputy Governor of CITIC Bank (Shen Zhen) Branch, Chairman of Da Peng Securities Co., Ltd. and Deputy General Manager of China Gold Coin Corp. From November 2001 to February 2011, he served as the Deputy Chairman and President of Shanghai Gold Exchange. And from February 2011, he became the Chairman. Mr. Wang Zhe is a well-known expert in the country's precious metals industry with rich experience in not only the precious metals market, but the banking and securities sector as well.*

PERÚ: 10° Simposium Internacional del Oro

10th International Gold Simposium

2° Foro de Plata
2nd Silver Forum

Nariguera | *Nose ornament*
Cultura Moche | *Moche culture* 100 - 800 d.C. | *AD*
Museo Oro del Perú - "Armas del Mundo"
Fundación Miguel Mujica Gallo

Lima, Perú 15-17 mayo | *may* 2012

The Westin Lima Hotel & Convention Center

Conferencias y Exhibición | *Conferences and Exhibition*

Organizado por / *Organized by*

Comité Aurífero
Sociedad Nacional de Minería, Petróleo y Energía

Sociedad Nacional de MINERÍA PETRÓLEO Y ENERGÍA

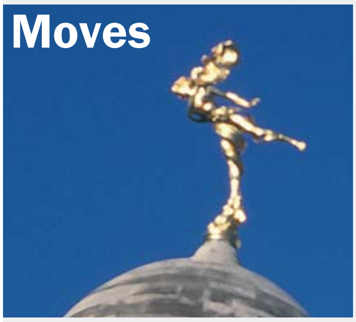
Promueven / *Promoted by*

WORLD GOLD COUNCIL

THE SILVER INSTITUTE

PERÚ Ministerio de Energía y Minas

Market Moves



GFMS to Thomson Reuters

Thomson Reuters has acquired analyst firm GFMS (formerly known as Gold Fields Mineral Services), a leader in precious and industrial metals markets research and analysis.

Philip Klapwijk, former Executive Chairman of GFMS, takes on a new role of Global Head of Metals Analytics at Thomson Reuters. He has over 20 years' experience analysing the gold, silver and PGMs markets, most of this time working for GFMS, which is the world's leading specialist research consultancy on the precious metals markets. Philip is a frequent speaker at conferences on precious metals and commodities, and the print and electronic media regularly quote his views on the gold, silver and PGMs markets.

Paul Walker, former CEO of GFMS, has taken on the new role of Global Head of Precious Metals. After graduating with degrees in commerce and economics from the University of Cape Town, Paul worked as an economics researcher for a Member of Parliament in the UK House of Commons before joining the United Nations affiliated International Lead and Zinc Study Group, where he was involved in a wide range of economic studies and forecasts. He has a PhD in the application of mathematical optimisation to large non-linear economic systems from the University of Nottingham in the UK. Dr Walker joined GFMS in 1995, where he acted as Chief Executive Officer of GFMS, in addition to being responsible for gold, silver and PGM research in East Asia, India and South Africa.

Davide Collini to BNP Paribas

BNP Paribas has added Davide Collini as a Senior Director for precious metals sales within its Global Equities and Commodity Derivatives business. He reports to Mikko Rusi, European head of base and precious metals sales.

Zhiming (Samuel) Yang to Credit Agricole CIB

Zhiming (Samuel) Yang joined Credit Agricole CIB London in June 2011. He will be responsible for precious metals spot and forward trading. Samuel previously worked at ABN AMRO N.V., where he covered market making in precious metals, and before that he had traded precious metals/foreign exchange for the Bank of China in London and Shanghai.

Kevin Crisp to Deutsche Bank

Kevin Crisp is joining Deutsche Bank as Director of Precious Metals in September 2011. Kevin graduated in Mining Engineering from the Royal School of Mines, Imperial College and then undertook post-graduate research at Kyushu University in southern Japan. He worked in South Africa and Australia before joining Consolidated Gold Fields in London from where he was seconded to Gold Fields Mining Corporation in Denver. On returning to the UK Kevin worked as Senior Analyst for commodity research company GFMS, covering the Middle East and Asia. He then joined JP Morgan, working as precious metals strategist before moving into the marketing side of the precious metal business. Kevin spent the last five years managing Mitsubishi Corporation (Europe) Plc's bullion business and from 2009 to 2011 served as Chairman of the LBMA.

Richard Ringrose to Deutsche Bank

Richard Ringrose will join Deutsche Bank's Precious Metals flow business as a Director in September 2011. Richard has a Master's Degree in Finance from the National University of Ireland, Cork and joins Deutsche Bank with 10 years of experience in financial markets starting out at Citibank in 2001. More recently Richard spent three years at BNP Paribas where he has focused predominantly on commodity derivatives.

Matthew Lynch to HSBC

Matthew Lynch has joined HSBC as an Associate Director for Precious Metal Sales. Previously Matthew was with Mitsui for five years, and prior to that, Johnson Matthey.

David Govett to Marex

Marex has appointed David Govett as Head of Precious Metals in its London office. In this role, David will focus on establishing a dedicated Precious Metals division. David joins Marex with over 23 years of experience in the Precious Metals market. He began his career on the Precious and Base Metals desk at Prudential Bache London and was made Head of Precious Metals in 1987, followed by a similar experience at AIG. David also set up and managed Precious Metals broking desks at Cantor Fitzgerald and ICAP, before spending two years in Australia heading up the Precious Metals arm of TFS. He returned to England at the beginning of 2011.

Shane Lennox to Mitsui & Co Precious Metals

Shane Lennox graduated from Amherst College Massachusetts USA in May 2009. In October 2009 he joined MPM London Branch as a trader. Shane relocated to Mitsui New York office in June 2011 to assist Mitsui's global options team.

James Su to Natixis

James joins Natixis in London. He started his career in Australia in 2002 at Rothschild, before moving to ABN in 2005.

Kate W. Harada to TANAKA Holdings

Kate W. Harada joins TANAKA Holdings with over 25 years' experience in precious metals, FX and the fixed income market. She began her career on the Precious Metals desk at Sumitomo Corporation Tokyo, followed by variety of experience at Midland Bank, Lehman Brothers, SBC Warburg and Mitsubishi Corporation.

Regulation Update - Conflict Gold

Supply Chain Due Diligence – LBMA Involvement

By Ruth Crowell, Commercial Director, LBMA

The LBMA has continued its work regarding US and OECD regulation of conflict gold supply chains. Both the OECD and the US are in the process of creating due diligence requirements for gold emanating from conflict areas and in particular from the Democratic Republic of Congo (DRC).

Bullion Market Regulation Workshop: *Responsible Gold*
Le Centre Sheraton Hotel, Montreal
14:15 - 16:00 20 September 2011
Chairman - Ruth Crowell, Commercial Director, LBMA

OECD Due Diligence - Gold Supplement
Tyler Gillard, Legal Expert - Investment Division, OECD

LBMA Responsible Gold Guidance
Stewart Murray, Chief Executive, LBMA

Conflict Gold - The Good, the Bad and the Ugly
John Bullock, Chairman, IPMI Environmental and Regulatory Affairs Committee

Key Dates

15 September 2011
Expected publication of SEC rules to implement the Conflict Minerals section of the Dodd-Frank Act.

20 September 2011
LBMA Conflict Gold Workshop - Montreal, Canada

31 December 2011
Expected publication of OECD Gold Supplement

31 December 2011
LBMA will publish final Responsible Gold Guidance

Background

As a result of the Dodd-Frank Act, the US now requires all companies reporting to the SEC to file periodic reports disclosing their use of ‘conflict minerals’ and ‘DRC Conflict Minerals’. (This reporting requirement applies only to SEC reporting companies; which are companies with more than $10 million in assets and whose securities are held by more than 500 owners.) Many different groups have been working on methods to assist companies in filing these reports to the SEC, including the SEC itself, the UN Working Group of Experts on the DRC, the OECD, the Responsible Jewellery Council and the World Gold Council.
The LBMA will continue to work with all these groups to ensure that the best possible scheme is produced and communicated to all members of the market.

LBMA Involvement

The LBMA has become more actively involved in supply chain regulation due to its unique relationship with international gold refiners in the form of the LBMA Good Delivery List.

In January 2010, the LBMA made a submission to the SEC on fundamental issues, including the need to grandfather in existing stocks of gold, recycled and scrap metal, public disclosure as well as unintended consequences for the gold market and Africa.

To date, the LBMA has acted as an observer on various groups which have addressed the issue of gold supply chains, including:
- The World Gold Council
- The Responsible Jewellery Council
- The OECD
- In the US, the Electronic Industry Citizen Coalition (EICC).

The LBMA will continue to act as a conduit of information to the market on the issue of ‘conflict gold’. The LBMA will also continue to keep Members, Associates and, most importantly, Good Delivery Refiners informed as supply chain regulations develop. The Regulatory Affairs Committee (RAC), the Physical Committee as well as the Good Delivery Referees group have all been actively involved in finding a practical solution to the challenge of enabling all GD refiners to indicate that the metal they supply to the market is free from conflict gold.

LBMA Responsible Gold Guidance

In order to ensure that supplies from all LBMA GD refiners are free from conflict gold, the RAC and the Referees have been developing guidance on the due diligence needed to demonstrate this. It is envisaged by the RAC that the LBMA Guidance should form a foundation of legal compliance that is credible to the outside world and feasible for all Good Delivery Refiners.

The drafting of the Guidance Document is now at an advanced stage. The LBMA will hold a Workshop on Conflict Gold on 20 September 2011. This will follow on directly from the LBMA Conference in Montreal, Canada. Prior to this, a final draft of the Guidance will be circulated to all GD Refiners.

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

Effective 1 July 2011, Bache Commodities Ltd will be known as Jefferies Bache Ltd, due to an ownership change.

Associates

On 12 May 2011, Dillon Gage Inc. of the USA was admitted as an Associate.

On 25 July, Gold Standard DMCC of Dubai was admitted as an Associate.

These additions brought the membership to a total of 125 companies, comprised of 60 Full Members, 61 Associates and 4 Affiliate Members. This is the first time that the number of Associates has exceeded the number of Full Members.

AGM

The 23rd Annual General Meeting of the LBMA took place in Armourers Hall on 22 June. In his report for the past year, the outgoing Chairman, Kevin Crisp of Mitsubishi Corporation International (Europe) Plc, commented on the ever-broadening activities of the Association and thanked all LBMA Committee Members for their time and effort in supporting the market as a whole especially at a time when there are so many demands upon the individual. A copy of his speech can be found on the LBMA website: www.lbma.org.uk. The reports by the chairmen of the five sub-committees give a comprehensive picture of the LBMA's activities and are contained in the minutes of the AGM, which are available in the members' area of the website. Any staff in Member and Associate companies can obtain their user ID and password to access this part of the website from the Executive.

As well as the normal statutory business of approving the accounts and appointing the auditors, the AGM elected the members of the Management Committee.

The new committee met immediately after the AGM and elected David Gornall as Chairman and Steven Lowe as Vice Chairman.

LBMA Management Committee elected 22nd June 2011

Grant Angwin, Johnson Matthey Inc

Philip Aubertin, UBS AG

Simon Churchill, Brinks Ltd

Jeremy East, Standard Chartered Bank

David Gornall, Natixis

Raymond Key, Deutsche Bank AG

John Levin, HSBC Bank USA NA, London Branch

Steven Lowe, Bank of Nova Scotia – ScotiaMocatta

Clive Turner, JPMorgan Chase Bank

Our thanks go to Martyn Whitehead of Barclays who stepped down in June for his seven years of service on the Committee.

COMMITTEES

Management

The Committee met in June to prepare for the AGM and also held its first meeting after the AGM in early July. As usual, the Committee's work largely consists of reviewing and guiding the work of the subcommittees and making decisions based on their recommendations. A particular focus in recent meetings has been the formulation of a policy on 'conflict gold' based on discussions in the Regulatory Affairs Committee, the Physical Committee and the Referees' group. See the Regulatory Affairs Committee section below and the Regulation Update on page 23.

Noting that final decisions on the future regime for bank liquidity and capital will be promulgated by the Basel Committee for Banking Supervision (the Basel III regime) by the fourth quarter, the Management Committee has decided that the LBMA should organise a seminar for Members to inform them about the treatment of gold under Basel III. The seminar is likely to be held in early January and may also cover other regulatory matters.

The Committee noted the resignation of John Levin (owing to his return to Australia). Market Makers were asked to put forward nominations for replacement candidates to be co-opted on to the Committee. These nominations were considered by the Management Committee and it was agreed to co-opt Jeremy Charles of HSBC to replace him. John's role as Management Committee representative on the Membership Committee will be taken over by Jeremy East.

Regulatory Affairs

The RAC met twice in the last quarter to discuss a variety of regulatory issues. This included primarily conflict gold as well as EU and US proposals for mandatory clearing of OTC products via a central counterparty. It also assisted the World Gold Council in its lobbying efforts to ensure that gold is considered to be a high-quality liquid asset in the Basel III regime. This included the one-off survey of LBMA Members' gold trading turnover, which was carried out on the basis of their trading activity in the first quarter of 2011 (see article on page 9). However, the majority of the Committee's work has focused on conflict gold due diligence. The LBMA has become more actively involved in this area of regulation due to its unique relationship with international gold refiners, which are accredited under the LBMA Good Delivery system. From discussion in the RAC and Management Committee, a consensus has emerged that the LBMA should require Good Delivery refiners to indicate that they are taking measures to avoid receiving conflict gold in their feedstock. To achieve this, the LBMA has tasked the RAC and the LBMA Referees with developing guidance to allow GD refiners to demonstrate that their production is conflict free. It is envisaged by the RAC that the LBMA Guidance should form a foundation of legal compliance that is credible to the outside world and practicable for all Good Delivery refiners. The Guidance has recently been circulated to all refiners on the Good Delivery List. It has also been submitted to the OECD with a view to it being incorporated into the OECD's own guidelines on supply chain management.

Ruth Crowell, our point person on Conflict Gold, is now playing an active role on the OECD drafting committee that is developing its gold guidelines.

For more on conflict gold and other regulatory issues facing the precious metals market, see the Regulation Update on page 23.

Physical
The Committee has met each month other than August this year. The work of the Committee, other than GDL applications and Pro-Active Monitoring, has focused on the work of the vaults. A meeting of London vault managers took place in May to discuss various operational issues aimed at streamlining transfers between vaults (for example, standardising the arrangement of bars on pallets and the associated weight lists). It also discussed the best way of ensuring a consistent approach to the assessment of physical defects. The meeting also agreed on a standard form for use by the vaults when reporting examples of rejected bars to the LBMA Executive. Previously, vault managers have met on an ad hoc basis, but it is now planned that these meetings will take place more regularly in the future. The Committee also discussed the possibility of creating an LBMA Accreditation Scheme for vault staff. If it is decided to go ahead with this idea, further details will be published in a future edition of the Alchemist.

Public Affairs
The Committee's work has been dominated by intensive discussions on the speaker programme for the successful Shanghai Bullion Market Forum held in May (see review on page 17). In addition, the Committee has spent many hours discussing the speaker programme for the forthcoming conference, which will be held in Montreal in September. The Committee has also been considering various venues for the 2012 Conference as well as the organisation of a Bullion Market Seminar in the US in the spring of 2012. Unlike the recent forum in Shanghai, the purpose of this seminar is not to focus on the local market but instead to explain to North American investors, traders and regulators how the OTC bullion market works.

Membership
The Committee met once during the past quarter when it reviewed the operation of the new sponsorship regime for Member and Associate applications. The new system is similar to the Associate Review process in that it puts the onus on the applicant to ensure that letters of support are provided in good time by its sponsors. Sponsorship of applications for membership is a serious matter for Members and this can lead to delays while such requests are being considered. The new system is intended to ensure that the time required for processing applications is kept to a minimum.

Finance
The Committee met in June to review the three-year forecast in light of the income and expenditure for Q1 and Q2 2011. The Committee also agreed on the currency hedging for the 2011 Conference in Montreal.

Referees
The Referees group held its regular quarterly meeting in June where it discussed many different technical aspects related to the use of the LBMA reference samples for the testing of existing and aspiring members of the Good Delivery List. The meeting also agreed on the arrangements for the planned proficiency testing scheme for gold fire assayers, which it is hoped will be launched in October this year.

Staff Matters
We were sorry to lose the services of Alice Toulmin as our PR and Media Assistant at the end of July. Anyone interested in applying for the resulting vacancy should send their CV to the Chief Executive.

Committee Vacancies
Following his election to the Management Committee, Grant Angwin resigned from the Public Affairs Committee. Darryl Hooker has also left the Committee as a result of a change in responsibilities at EBS. There is therefore currently a vacancy on the PAC. Anyone interested in applying should send an email to the Chief Executive with a brief statement of their bullion market experience.

London Precious Metals Clearing Limited
London Precious Metals Clearing Limited has also announced that the cut-off time for the acceptance of transfer instructions on Friday 23rd December, and Friday 30th December, 2011, will be 14:00 G.M.T.

The London Gold Market Fixing Limited
The London Gold Market Fixing Limited has announced that there will be no afternoon gold fixings on Friday 23rd December and Friday 30th December, 2011.

Editorial

Editorial Comment by David Gormall, Chairman, LBMA

After having contributed a number of previous articles (mostly of a technical nature) to the *Alchemist*, I now have the honour of writing one as Chairman. First of all, I would like to pay tribute to my predecessor, Kevin Crisp, who stepped down at the AGM after a two-year stint in which he demonstrated both leadership and a tremendous work ethic in the role as Chairman. I have first-hand evidence of his dedication and total attention to the many tasks involved in chairing the remarkable organisation that the LBMA has become.

We also have a number of fresh faces on the Management Committee, and at the first meeting after the AGM, the new Committee focused on the goal of building on the work on regulation, which was initiated earlier this year with the establishment of the Regulatory Affairs Committee, or as we now refer to it, the RAC. This powerful new committee is made up of 14 representatives of Member companies plus Barbara Ridpath of the International Centre for Financial Regulation. The new Committee's activity is rapidly becoming an additional pillar to the Good Delivery system and the organisation of seminars and conferences.

We have seen a shift in what investors expect in both types of class and performance. This has led to an increase in physical demand and an even greater expectation that the highest standards will be maintained in the quality of metal traded and stored on behalf of investors.

We have seen a shift in what investors expect in both types of class and performance.

Whilst the physical demand has been facilitated by the marketplace generally, it is of course the Good Delivery List that assures the quality of the metal. This integrity provides the foundation of what is expected of us.

We now seek to fulfil some other aims that will further enhance the market in which our members operate.

There are several pieces of legislation that require the engagement of the LBMA. The first challenge will be for the LBMA to complete the work already started to enable the compliance on the part of the GD Refiners under the US Finance (aka Dodd-Frank) Act relating to 'conflict gold'. Secondly, in September, the debate on bank capital ratios within Basel III will recommence.

Responding to these challenges, the new Management Committee has agreed that the LBMA must be at the forefront of the current regulatory debates. Where the topic is closely related to the OTC Gold and Silver markets, and more particularly when it comes to discussing changes relating to refining standards, the LBMA intends to lead the debate. This will provide a consensual and informed view on OTC practices for lawmakers to consider prior to any changes in law that relate to our market.

In short, we intend to reinforce the role of the LBMA as the competent authority for OTC Gold and Silver.

Towards the end of the year, we plan to organise a seminar on the topic of the Regulatory changes for the benefit of the LBMA membership. This should enlighten us all about what we face in the post Dodd-Frank and Basel III era.

Finally, looking ahead, we will soon be entering our 25th year, where we hope to provide the membership with more than just an annual party. Keep up to date with these plans and all our other news through the website and the *Alchemist*.

facing facts

Paul Burton
Managing Director
GFMS World Gold Ltd

The first half of the year was a fascinating time for precious metal market watchers, with record gold prices and rocketing silver prices grabbing the headlines constantly. But spare a thought for gold equity investors who, quite reasonably, should have expected spectacular gains on the back of the fast-rising gold price. Gold equities, producers and developers alike have, however, been laggards throughout this booming market. In many cases, not only have they failed to keep pace with the gold surge, but they have actually fallen in price – a dismal and perplexing outcome for investors.

Traditionally, investors have chosen gold-mining shares instead of the underlying metal in order to capture returns in excess of the extent of any metal price rise. This effect we call leverage.

For example, when the gold price goes up 23% (as it did over the 12 months to mid-May), they may have expected something like a 40% rise in their investments. For certain periods in the past, the producers, mainly because of their cost structures and the fact that they have a chance to expand the ounces invested in through exploration, but also because of the higher risk of actually getting the metal out of the ground, have outperformed

the gold price, in percentage terms, by a considerable amount usually. Leverage is one of the main reasons that fund managers put their money in a gold-producing company rather than the metal itself.

But that relationship has broken down in recent times. In fact, we can pinpoint the date that the positive correlation and unique relationship between gold and gold shares disconnected - October 2008. The time the worldwide economic crisis hit the markets. If you remember, the gold price plunged but recovered in short order to reassert the bull trend and has, in fact, gone from strength to strength since that time. Gold shares (developers as well as producers) were hit even harder in Q4 2008, clearly exhibiting leverage, but sadly on the downside! But whereas the gold price has recovered and strengthened, gold shares, as defined by indices such as the XAU and the FTSE Gold Mines, haven't regained the initiative and have lagged behind the upward movement in the underlying price. This has been particularly marked this year so far.

The chart below shows the gold price and the FTSE Gold Mines index, both indexed back to the start of the current bull market. You can clearly see how the index performed better than the gold price for the bulk of the period, but since late 2008, it has been a different story.

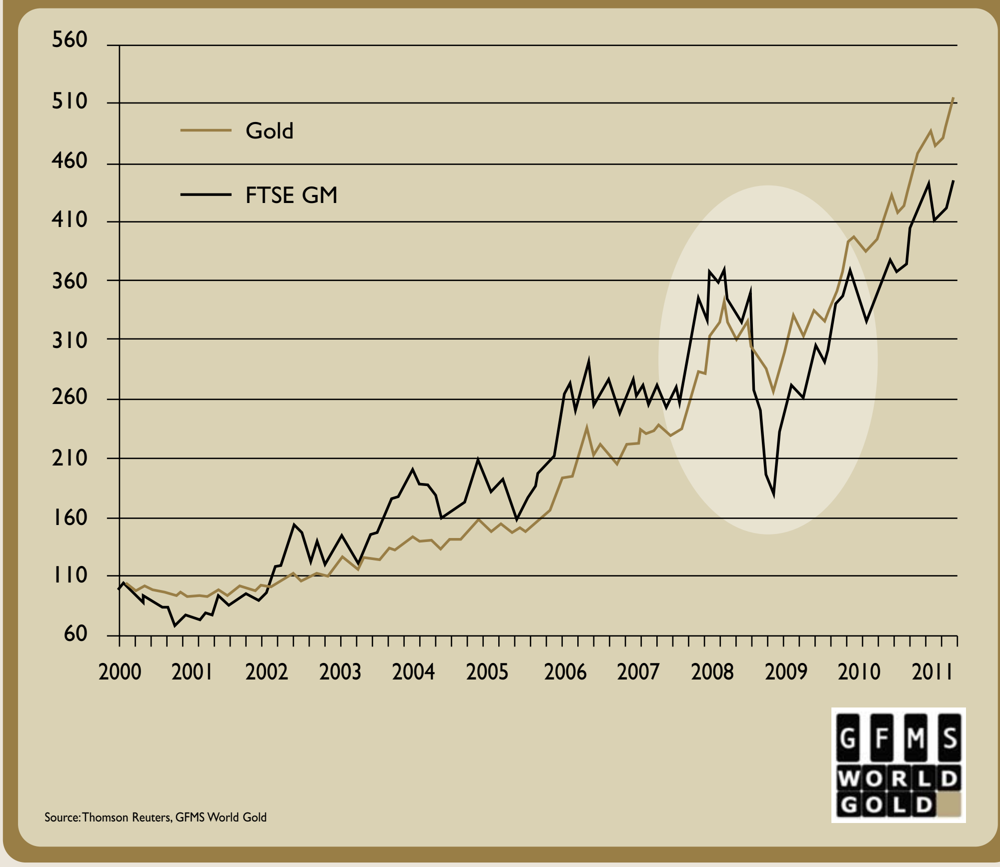
So why has this happened? It's difficult to say definitely, of course, but it seems that there may be two main factors at play. The first is that we have seen a shift in investing patterns away from gold stocks in favour of the metal. This has been facilitated by the existence of the ETF gold products. In late 2008 and early 2009, there was a noticeable steepening in the demand curve for such products and their popularity has continued, although in early 2011, we saw net redemptions, partly due perhaps to the fact that soaring gold prices have led investors to become overweight in gold, relative to their other assets, prompting them to divert funds elsewhere (such as into silver) or to simply book profits. The growth of investment and jewellery demand in China may also have been a contributing factor.

A second reason for the lacklustre performance of gold stocks may be a swing away from the larger gold producers to smaller companies, who may be producers or developers. Certainly, individual gold shares in this latter category have demonstrated great performances recently, but the overall picture is patchy and investors are clearly being selective. There are some signs also that investors are favouring a junior miners' ETF rather than the actual mining stocks themselves.

So in conclusion, the market's lack of leverage over the past couple of years may be down to a switch over to gold itself (through ETFs), or cash, but may also reflect a move into smaller gold producers and developers, again through an ETF vehicle. The case is not proven but does offer a feasible explanation of the longer-term malaise.

The sharp downturn in the first half of this year in all gold indices is more baffling but does present a buying opportunity, I believe, over the historically weak summer months.

Paul Burton
paul.burton@gfmsworldgold.com



Longer term - gold price and FTSE gold mines index

Source: Thomson Reuters, GFMS World Gold

The Alchemist is published quarterly by the LBMA.
For further information please contact Ruth Crowell,
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

The *Alchemist* is designed by Ion River.

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The Art of Precious Metal Transformation™

Knowledge

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

Innovation

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as '**Good Delivery**' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five '**Good Delivery' Referees**' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

Vision

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPM
GOOD DELIVERY REFEREE

Alchemist

The London Bullion Market Association ISSUE 64 November 2011

LBMA

In this issue

Red tape or Red ribbon?
Christmas is coming but so are the final SEC rules on conflict minerals.
Will it be another prosperous New Year for the gold market? Find out inside.

COMMERZBANK

What you need is a global partner in precious metals

Argor-Heraeus

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg CBGL<GO>
Reuters CBGL
Direct contact +352 477 911 2540

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request. Copyright © Commerzbank AG 2011

Achieving more together

What a difference 10 years can make

By Pierre Lassonde, Chairman, Franco-Nevada Corporation

The following is an edited version of a keynote speech made at the LBMA (LPPM) Conference in Montreal on 19 September 2011.

Introduction

It is very fitting for me to be here today because I was also a speaker 10 years ago at the LBMA conference in Istanbul. It was a wonderful venue and a magical place that left a permanent reminder with me, as I met a very attractive banker there who was to become my wife. Attending a gold conference in those days was very much like going to church. The rooms were mostly empty with a few old people at the back who prayed a lot.

The Gold Price in 2001

In May 2001, the gold price was barely over $250. The Dow was sitting at just over 10,735 and it had just crossed over 10,000 a few months earlier. The US three-month T-Bill was about 3.8% and today, as you know, it is about zero. The Fed fund rate was set at 6% and that is also now about zero. The US dollar was the currency of choice. It bought €1.12 in those days. Europe for Americans is cheap – it was a bargain. Today, of course, it buys you about 40% less.

In 2000, the US population was about 280 million. It consumed 7.2 billion barrels of oil per year, or 25 barrels per person, while China with 1.2 billion people consumed 1.6 to 1.8 billion barrels or 1.5 per person. In the last 10 years, the US has actually gone down to 22.6. Higher prices do work miracles, do they not? In China, consumption has not quite doubled – but almost – to 2.7 barrels per person. That is just to give you an idea of what is happening in China and the impact of China on the whole world of commodities, not just gold.

Finally, China's foreign exchange reserves stood at a paltry $166 billion 10 years ago, and are over $3.1 trillion today. Now, I will give you just a little rapid overview of 2001 and what was happening then. The central banks were selling 479 tonnes of gold. The average cost of production for gold was $319. The gold producer hedge book totalled over 3,000 tonnes, and mine production was peaking at 2,600 tonnes per year.

Changes in the Gold Market

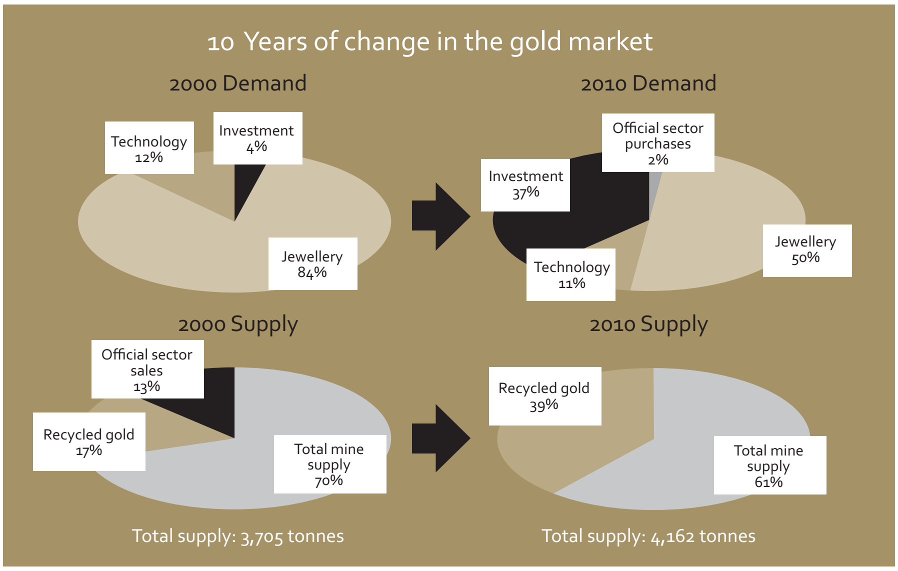
Overview

The reason why I am looking at that is to look at the lessons of the last 10 years and see what may happen over the next 10 years. What are the lessons to be learnt and the changes in the gold market that we see over the last 10 years? Well there are five big things. Firstly, central banks have gone from sellers to buyers. Secondly, producer hedging is dead. It is deader than a doorknob. Thirdly, investment demand has grown from 4% to 37% of overall demand. That is a huge, tectonic change.

The counterparty to that is jewellery demand, which has collapsed from 84% to less than 50% of total demand this year. Finally, the role of recycled gold in the supply side has gone from 17% to 39% of total supply. That is huge, specifically for the refiners. What has not changed? Technology demands have stayed constant at about 12%. Mine production is essentially flat. It was 70% and is now 61% only because recycled gold has taken so much more. I will now go a little bit deeper into each of the components and give you a bit more of the flavour.

European Central Banks

Looking at central banks, from 1990, the European central banks started to exhibit what I would call the jailbreak syndrome: who can sell that useless yellow metal the fastest before the price dropped to zero and the tens of thousands of tonnes that were held in the vaults of their banks would turn to dust. The lure of the US dollar was so great. It paid interest and it was the reserve currency of choice, so they wanted to get rid of that yellow stuff gathering dust, and so they did. If you total it up, they sold over 5,000 tonnes and have lived to regret it.



I should have entitled my next slide 'the biggest losers', but the point is made. If only they had kept their gold. The biggest surprise is who leads the parade of the biggest losers. People always think it is the UK, but the UK actually came in third. The Swiss and the French led the parade. The total notional loss of $1,800 gold is over $200 billion. It makes the Greek crisis look like chump change. However, it is just as instructive to look at who is not there: Germany and Italy, the second-largest holders of gold after the USA. Interestingly, Italy had been in trouble in 1970s and it had to do a loan collateralised with gold. Guess which loan they repaid first? It was their gold loan. Today, Italy has 2,500 tonnes of gold in its vault worth over $150 billion. That is enough to plug a hole or two. It is my absolute view that in the next two years, you will see Italy use its gold to once again plug some of their holes in their budget because they are going to have to. It also comforts me that the European central bankers responsible for the sale of the gold of their countries have since been promoted to handle the financial crisis. The gold market is in good hands!

Investment demand has gone from 4% to 37% of total demand, but I think it has got an even brighter future. When you look at global asset allocation and wealth, gold today accounts for a miniscule 1% of total wealth. A simple doubling, going from 1% to 2%, of this position would represent purchase of 31,000 tonnes of gold at today's price.

Asian Central Banks

As the 1990s and the first decade of the 21st century were defined by European bank selling, I believe that the next 10 to 20 years will be defined by Asian central banks buying. Most of the Asian countries have emulated Japan in its mercantilist policies of the 1970s and 1980s, and have accumulated very large foreign exchange reserves. The global financial crisis of 2007 and 2008 has highlighted the vulnerability of the reserve currency, the US dollar. It has also highlighted the fragility of the euro, leaving only gold as the currency of last resort. It is our view that the Asian central banks will move over time to a 15% weighting in gold as a minimum. If you look today at the European central banks and each of the countries, their gold weighting is probably closer to 50% in their reserve exchange. I would say that the Asian central banks will move first to 15%, but I would not be surprised if they go higher than that. Just with 15% weighting, if you look at their current reserves, that would represent 17,000 tonnes of gold to be purchased over the next 10 years. Any significant retrenchment in the gold price, in my view, will be seen as an opportunity to boost their gold reserves.

Gold hedging

Central banks, as I noted earlier, were not the only sellers in the 1990s. A number of producers thought that they had found the equivalent of the financial elixir of perpetual profits in the form of gold hedging. The peak was reached in 2000 at just over 3,000 tonnes of gold. It was mostly borrowed from the central banks at miniscule interest rates because they could not care less, it was so worthless, in order to capture a contango in the 3% range. Just to remind you, hedging was first introduced in finance as a risk-mitigating instrument. If you do not take a view on price and you constantly hedge, it is a zero-sum game. However, the producers took a view – the wrong view. They ended up accumulating colossal losses that they had to make up by diluting shareholders' equity, and we all know too well which company ended up having to do a $5 billion equity to pay off their hedge book losses. It is a good thing they did it at the time they did it, because today it would be $10 billion.

So there are two reasons why hedging today is essentially dead. Firstly, the gold company shareholders do not want their company to hedge their production. They want to have full leverage to the gold price, and they are punishing companies that would even think of that by decreasing the price-earning ratio of the company, which makes them less likely to be competing for assets with other companies. Yet, the real reason is that there is no contango left. The price today and tomorrow is actually a flat price, while the actual price keeps going up. So you are much better off not hedging. With a zero-interest-rate policy announced by Bernanke for the next three years and possibly even longer, I do not see a return of hedging for quite a number of years.

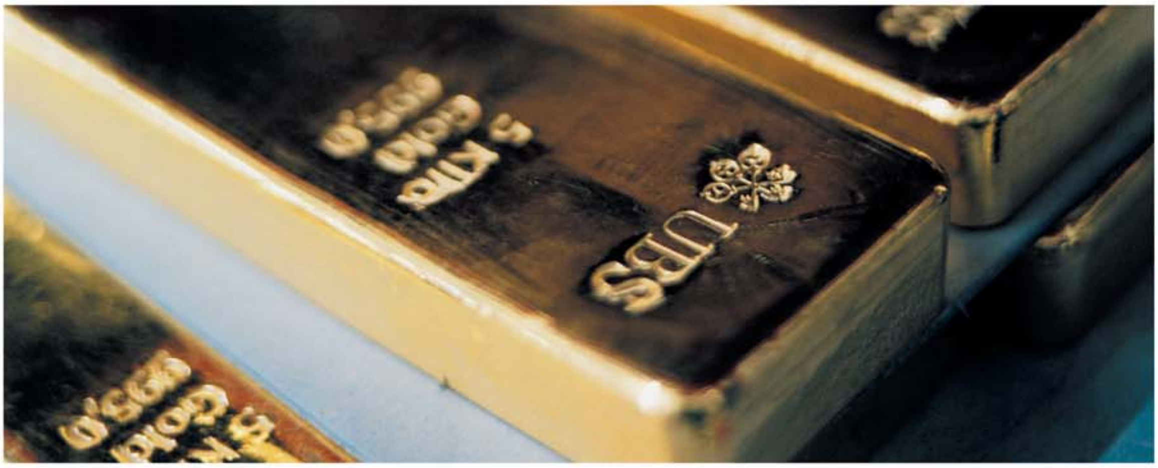
The Gold ETF

To me, the most remarkable development of the last 10 years, and I will admit that I am a tad biased here because I had a bit of a hand in its creation, has been the advent of the gold ETF. The first of its kind was the World Gold Council-backed GLD, which is now listed on a multitude of exchanges. For the first time in history, one can buy gold 24 hours a day, seven days a week, with a minuscule friction cost. The idea when we created this ETF at the World Gold Council was, and I still remember telling the members of the Council, that if we want gold to be an alternative currency to the US dollar and to the euro, gold has to be completely and totally liquid. You have to be able to buy it 24 hours a day, seven days a week – only then will we have a currency that can compete with the dollar, and that we did. It took two and a half years and $15 million to get it through the SEC. You can imagine that when the SEC found out that the gold price was fixed twice a day, they went bananas. That did not compute in their regulations. That is why it took so long to get it through, but we did, and for a while a month ago, the gold ETF was the largest ETF on the planet.

In little more than seven and a half years, the gold ETFs have accumulated in total some 2,300 tonnes of gold that have been purchased for a value of well over $145 billion. The global financial crisis of 2007 and 2008 brought down the financial systems and a lot of currencies. The central banks flooded the market with liquidity and cash in a bid to divert a 1930s-style depression. Gold, once again, is performing its role as the ultimate reserve currency, just like it did in the 1970s and in the 1930s. Let us face it: these days, currencies are like families. All of them are more or less dysfunctional and each has its own therapy. Gold, when you look at it, looks pretty good. That is why people are buying it. Investment demands have also exploded.

Demand for Gold

Investment demand has gone from 4% to 37% of total demand, but I think it has got an even brighter future. When you look at global asset allocation and wealth, gold today accounts for a miniscule 1% of total wealth. A simple doubling, going from 1% to 2%, of this position would represent purchase of 31,000 tonnes of gold at today's price. Inconceivable? I think not. I think it is going to happen. It is happening. That is another source of gold demand that we are going to see coming year after year for the next five to 10 years. Every year there are around 3,500 tonnes of refined gold produced, and if 50% of that is going into investment demand, then the amount consumed in other uses is bound to decline.



Your global partner for precious metals

Active in the physical and non-physical markets for almost a century, our award winning[1] dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

- Gold, silver, platinum and palladium
- 24h global service from hubs in Switzerland, the US, Singapore and the UK
- Physical precious metals custody in our Swiss vaults
- Coins: trading, handling and storage
- Structured products and tailor-made hedging solutions
- Full range of OTC derivatives
- Gold, Silver, Platinum, Palladium ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335
Stamford: +1-203-719 1178
Singapore:* +65-6495 3757
London:* +44-207-567 6752

*non physical only

Intended for investment professionals only

We will not rest

UBS

www.ubs.com/preciousmetals

[1] Risk No.1 Dealer in Precious Metals – Gold Spot and Options, Silver Spot and Forwards in Risk & Energy Risk magazines' Commodity Rankings (2011)
No.1 for Precious Metals in Risk magazines' annual survey: 1st overall and 1st in six categories (2009) © UBS 2011. All rights reserved. 04441 Alch.

That rest is jewellery. The funny thing about jewellery is that it responds to economics 101: the lower the price, the more the demand; the higher the price, the lower the demand. When gold was $250 in 2000, 84% of total demand was jewellery. For a few years, the gold price went up and jewellery demand went up. That is because it validated earlier purchases. People said that they had bought a necklace at $250 and now it is worth £300 so they thought they should buy another one, so then it went to $350. That worked for a number of years until the gold price got too high. At that point, jewellery demand started to go down, except in two countries – China and India. You can clearly see it is all happening today in those two countries, where demand for jewellery continues to increase even as the gold price increases. Between them, in 2010, they bought in 1,100 tonnes of jewellery compared with 200 tonnes in the US and Europe combined. It is happening there.

In 2004, when I was Chairman of the World Gold Council, I visited a store in Beijing run by Mrs Wong. In that year, that three-storey store of gold and jewellery only sold 1 billion yuan of jewellery. The yuan in those days was 8.2 to $1. This year, that same store will sell over 10 billion yuan of jewellery. The yuan is a little stronger than it was then; it is down at about 6.0 to $1 today. Think about it – 10 times the amount of jewellery in a space of seven years in one store. When you look at it from a combined 20% of total consumer demand, today between China and India, you are looking at 60%. It is going higher. I think that, within the next five to 10 years, between China and India, you will be looking at well over two-thirds to 70% of total consumer demand for gold. In the US and Europe, gold is going to be a very high-class item, much like diamonds are today and some of the nicer stones. That is what is likely to happen.

In 2004, when I was Chairman of the World Gold Council, I visited a store in Beijing run by Mrs Wong. In that year, that three-storey store of gold and jewellery only sold 1 billion yuan of jewellery. The yuan in those days was 8.2 to $1. This year, that same store will sell over 10 billion yuan of jewellery. The yuan is a little stronger than it was then; it is down at about 6.0 to $1 today. Think about it – 10 times the amount of jewellery in a space of seven years in one store.

Technology

We have talked about the five things that have changed the most. Now let me just refer to the couple of things that have not done much in the last five years. I am talking about technology. If you look at the technology sector, essentially about 11% or 12% of gold has been used in technology over the last 10 to 30 years. It does not seem to change. However, starting in early 2000, the World Gold Council decided to try to help the people that write papers about gold. We decided that we would publish those papers and help them connect so that people knew what was happening in the world of gold. That has made a big difference. The number of papers and patents that have been issued and awarded for the utilisation of gold in medical and commercial use is the equivalent of mining exploration.

I believe that at some point in the future a significant new application will be found that will have an impact on gold demand, so that not only are you going to have jewellery and investment demand, but you are going to have another significant commercial use of gold. As an example, the first gold-based auto catalytic converter went into commercial production for the 2012 model year. A medical application would be a game-changer. For example, if there was something like a gold-tipped Viagra pill, that would be game-changing. That would have a huge impact. Maybe it will happen, but when I look at the number of papers that are written and the number of patents, I think it will happen, but I do not know when.

Looking at the 1980s and 1990s, in each of those decades, they found at least one super deposit of 50 million ounces plus. That is a gold strike. At Yanacocha, they were producing 3 million ounces of gold. We have not had one since 1993, which is 20 years ago.

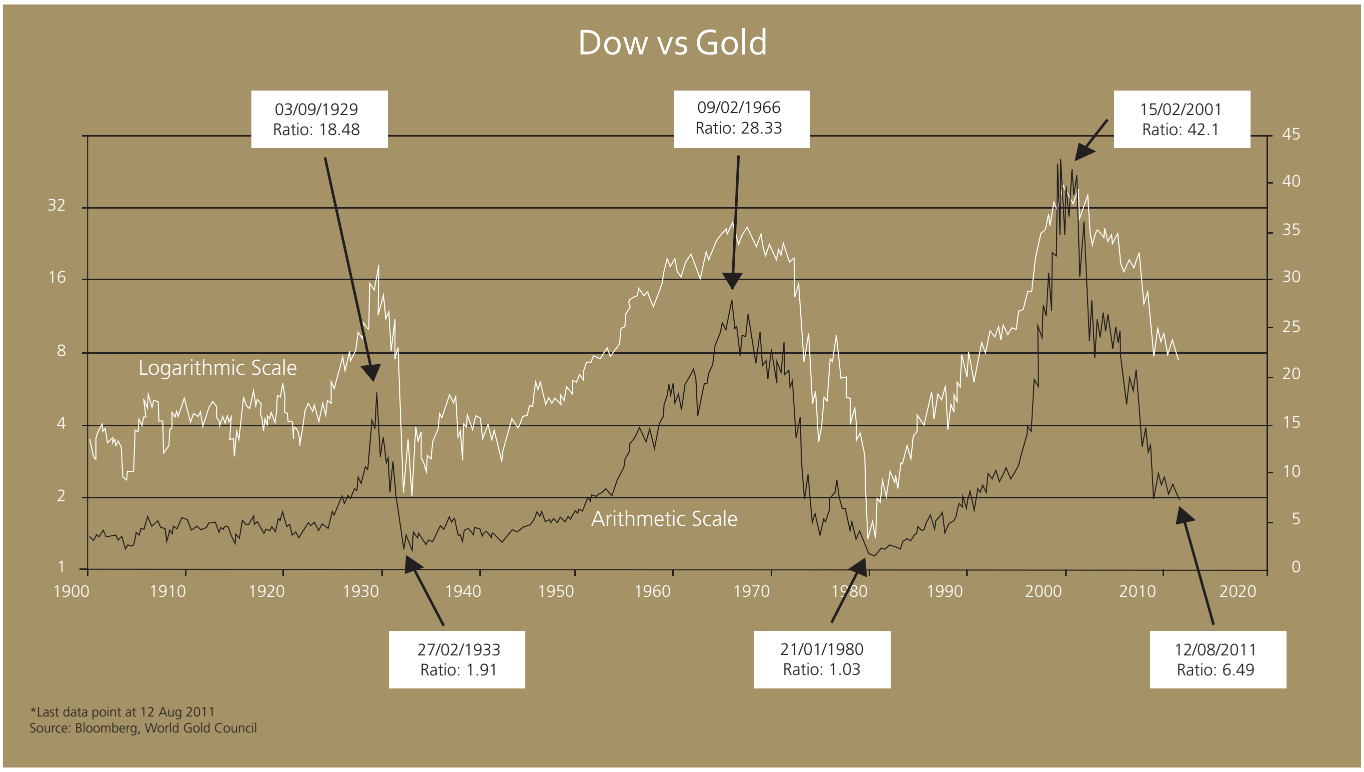
Gold Production

On the supply side, we have said that essentially we have had flat production. That is not quite the reality because we have had seven or eight years of decline in world production, but then in the last two years, there has been very strong growth again. In effect, it is the same as it was 10 years ago. That is all nice, but the reality is that the reason the producers have been able to increase production is because they have dropped their grades and they have let their costs go up. They have kept the margins, but the margins have not expanded as much, so as a consequence, the stock has not done very much if you look at the gold equities. That is a big surprise.

If you look at Newmont, today it is at $62 and that is the same as in 2004. In 2004, gold was $450. Today it is $1,800. How can that be? If you look at the head grade, it went from 1.5 grams to 0.8 grams and everything costs more. The most surprising thing in terms of the mining company over the last 10 years is the lack of major new discoveries. That is a big problem for the industry. Looking at the 1980s and 1990s, in each of those decades, they found at least one super deposit of 50 million ounces plus. That is a gold strike. At Yanacocha, they were producing 3 million ounces of gold. We have not had one since 1993, which is 20 years ago. Where are they? We used to find three to five 15 to 30 million ounce deposits a year. It has been more like one, two or three at the most in the last 10 years. When you look at that, you really wonder what is going to happen. We can keep increasing production by about 2% for the next five to 10 years. That is a very subdued rate of production unless the industry puts more money into R&D and starts to find more deposits. It is not going to happen otherwise.

The Market and Gold

I just want to finish with a chart of the Dow Jones industrial average divided by the gold price. It is a very simple way to look at the relationship between financial assets and hard assets in the form of gold, and what they look like over time. Looking at the chart across the page, there are a number of very interesting points. Firstly, you can see that there are times to own financial assets, like



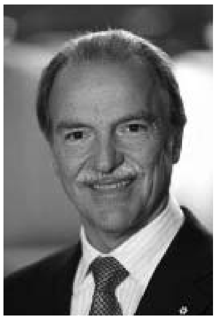
from 1980 to 2000, when the ratio went straight up for 20 years – so just buy financial assets. From 1946 to 1966, it was another great time. By the same token, there are times where you should really be in hard assets and forget the financials and banks. From 2001 to today, that has certainly been the case.

The other interesting point is looking at the last bull market in hard assets, which lasted 14 years from 1966, when the Dow hit 1,000 for the first time, to 1980, when the ratio peaked in terms of gold ratio to the Dow at one-to-one. The same thing happened in 1934. If you look at the 1930s bull market, you have to look at silver to get the length because gold was fixed in those days. The length of the bull market would have been about 16 years. Therefore, we have two previous bull markets of 14 years and 16 years respectively. Let us say that there is maybe another four to six years left in this bull market on average. Furthermore, the reason we wrote the letter in 1999 was to say to our shareholders that it took 42 ounces gold to buy one unit of the Dow. In 1980, it was one to one. The Dow was 800 and gold was $800. In 1934, the Dow had gone from 370 in 1929 to 37 and gold was up at $35; it was 1.1-to-one.

So, where do I think the gold price is going? I think it is going back to parity with the Dow at one-to-one. The Dow today is 10,700. From a ratio of 42 in 2001 to 6 in August 2011, the corresponding change in the gold price was a rise from $250 to $1,850. It has gone up by $1,600. If the ratio goes down from 6 to 1 (with the Dow unchanged), the gold price is going to go up by about $8,000. So it has got as much to go in ratio terms as it has already gone up.

My parting word is that this bull market is far from over. There is one more thing that you should note, however, as a note of caution. In the 1970s bull market, there was one very strong correction. The gold price went down 50% from 1974 to 1976, and a lot of people went bankrupt in those two years. We could have a correction of that magnitude in this bull market. We do have a correction and I believe there is going to be a strong correction at some point. It will then set up this last, explosive phase of this bull market that will take the gold price to numbers that few people imagine.

I believe there is going to be a strong correction at some point. It will then set up this last, explosive phase of this bull market that will take the gold price to numbers that few people imagine.



Pierre Lassonde
Chairman
Franco-Nevada

BA, BSc, U of Montreal 1971, MBA U of Utah 1973, P.Eng 1976, CFA 1984, Hon PhD Engineering U of Toronto, Montreal, Ryerson, Hon PhD Business, U of Utah.

Mr. Lassonde co-founded Franco-Nevada Mining Corporation in 1982. Over the next 20 years Franco-Nevada provided shareholders with a 36% annualised rate of return. The company was acquired by Newmont Mining Corp in February 2002 and Pierre became President and Vice Chairman in 2007. He served as Chairman of the World Gold Council from 2005 to 2009.

In 2008, Pierre led an investors group bringing back Franco-Nevada to the public market with a $1.2 billion IPO and became its Chairman. The current market capitalisation of Franco-Nevada is over $5 billion.

Mr. Lassonde's philanthropic interest in education and the arts is well known. He has been Chairman of the Quebec National Art Museum since 2005. He was made a Companion of the Order of Canada in 2002 and Officer of the Quebec Order in 2008.

Producer Pressures

- The Inside Story

By Stuart Murray, Chief Executive Officer, Aquarius Platinum Ltd

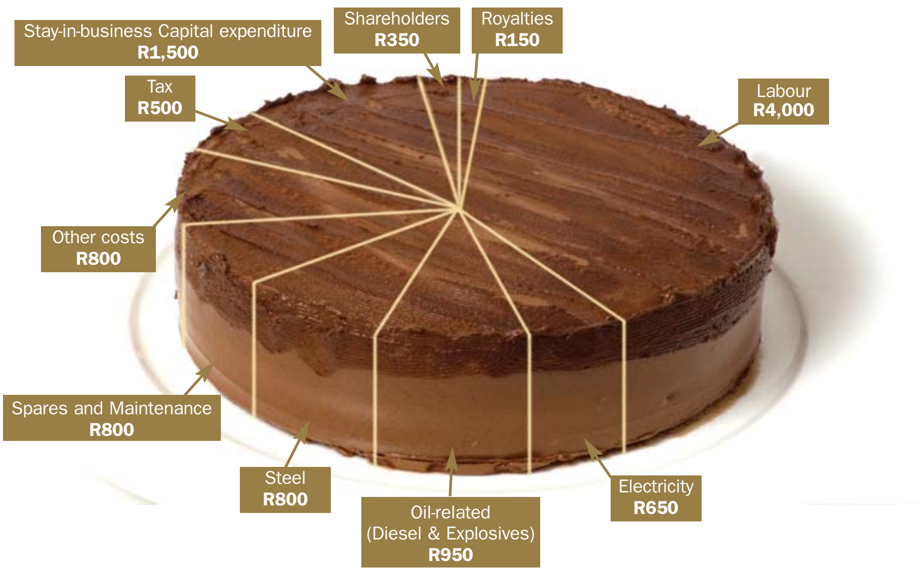
The following is an edited version of a speech made at the LBMA (LPPM) Conference in Montreal on 19 September 2011.

Introduction

Last evening, I bumped into somebody who asked Derek Engelbrecht and I if we were lost at this conference, because they felt it was just a gold conference, so very good of the LBMA to include us for this afternoon session.

The Platinum Cake - Enough to go around?

In Rand



We are in North America, the prestigious capital of the world. As some of you know, my colleague Gavin Mackay is a reformed lawyer – no offense to those lawyers present – and he is terrified of what I might say, so in addition to this, I do apologise to a few folk. I have knocked off some statistics, figures, half-truths and whatever from people, including the likes of Mr Trevor Raymond of Amplats, so it is not all my work here.

So how did I end up here? It is because of women. Yes, I am weak. Yes, I am easily led astray, but the lovely Margaret Davis and Edel Tully press-ganged me into this and naturally I could not say no. The last time I spoke to the LPPM, I talked about Tax Freedom Day, the day on which the earnings of a platinum company finally belong to the shareholders, and we concluded it was somewhere in December, so this year we are going to talk about the platinum cake.

The Platinum Cake – How Delicious Is It?

For those of you who follow South Africa, you will know this is a theme based on that well-known, prominent politician of ours, Mr Julius Malema. He made a statement about sharing the delicious cake and so I am going to talk a little bit about what this cake actually amounts to.

I also realise you have heard a lot of this stuff before. The whingeing and moaning of the South African platinum producers: "*We are making no money, the world is coming to an end, the sky is falling in*", so at times I may go a little bit off-piste and talk a little bit about the nationalisation debate. Julius Malema is the proponent of nationalising the mines in South Africa and has gone on record as being in favour of expropriating the farmland without compensation. It sounds almost as if we were living in that country to the north of us on the other side of the Limpopo. I am actually giving you two presentations for the price of one, which you would expect as we are a low-cost producer and we are a little bit cheap.

The Rand Basket Price

The cake reflects about 10,500 rand per PGM ounce, as it was last week. It is lovely and it is not all gold. It is only about 1% gold and I will remind you that it is a mix of platinum, palladium, rhodium, ruthenium, iridium and the like, and at today's prices that ounce is only worth $1,490 and not $1,800. People wonder why the platinum industry is looking a touch anaemic just now, but I will remind you that gold does not equal platinum in this current crazy world. We are receiving circa $300 an ounce less for a run-of-mine ounce than you would find on a traditional South African gold mine, despite having head grades that are similar and cash costs per ton that are similar. In addition, the process of extracting the PGMs is far more lengthy, complicated and more expensive than gold; hence, our margins are currently significantly less than those in the gold industry.

Royalties

However, is that cake enough to keep a miner happy? What happens is you have your revenue line and then the folk start lining up to feed at your trough. Let us start with royalties. That is government in one form or another.

Royalties are modest in South Africa. They are however EBIT-based and because our EBITs are low, royalties are low. In the event that the margins improve in this industry, royalties will become an ever-

increasing part of the equation. In Zimbabwe, the folk at the trough have now got royalties up at 5% of gross and are talking about much higher levels.

Labour

Then you move on to the other sort of folks, labour, and it is much talked about. In Zimbabwe, approximately 35% of cash costs are labour. On a deep-level platinum mine in South Africa, labour could be as much as 60%. Over the last 10 years, we have watched labour costs exceed CPI to the amount of roughly a 90% increase over CPI. At last count, on-mine labour is up probably 150% to 160% in South Africa, clearly an unsustainable proposition going forward.

Electricity

Electricity was once cheap in our part of the world, but we are now facing electricity costs that are on a par with the US or Europe, and that is before our dear state-owned enterprise Eskom requests another 25% per annum for the next two years, catapulting us into probably some of the highest cost power in the world.

For electricity-intensive industries such as platinum and gold in South Africa, it is an unsustainable situation going forward. This is not an example of the benefits of nationalisation.

I will talk just a little bit about the nationalisation debate. It is much talked about. Those of you in the gold industry watched Mr Chavez nick the Venezuelan gold industry. Let us think about what Julius is proposing for us.

In the 1950s, Chile created Codelco and you have watched Codelco's share of the Chilean copper production go from 75% to 25% to 30% now. Even the Chilean President is now criticising the inefficiencies, griping about the stagnant production and the climbing costs of the Chilean copper industry. Chile did, however, in parallel, allow the creation of privately owned copper enterprises in Chile, which, as you well know, have flourished in the intervening period.

In the 1960s, Zaire, now the Democratic Republic of the Congo, was producing circa 500,000 tonnes a year of copper. By 1989, it had got that down to 20,000 tonnes a year, and Gecamines is effectively pretty much bust to this day.

Zambia is a case study of the ill effects of nationalisation; Mr Kaunda took 51% of the copper mines in 1974. He managed to turn a 700,000-tonne copper industry into a 220,000 tonne a year industry in 25 years. Tellingly, since privatisation, the output of copper in Zambia has doubled in 10 years to around 400,000 tonnes.

In the 1960s, Ghana was a 900,000-ounce gold producer, for those aficionados of that base metal, and became a 300,000-ounce producer by the 1980s, so in 20 short years. Since the reprivatisation of the Ghanaian gold industry, production has risen to 2.9 million ounces, up tenfold. I think it is proven to you that privatisation and private enterprise work better than nationalisation.

In an Investec study, it quotes that 'the South African government is already creaming approximately 55-80% of the turnover of the average South African mining company in terms of its total take', which is a great deal of money considering the fact that they have taken none of the risk.

Tax

The cake that Julius would like us all to share is slowly disappearing.

For governments, enough is never enough in regards to taxation. It is a fact of life, and as you know what they say: '*Life is a bitch and then you die.*' I think the important thing is that, in terms of a study from Business Leadership South Africa, if the South African mining industry had been in state hands through the period of the global financial crisis, the cash deficit that the South African mining industry had for the 2009 year – in excess of 20 billion rand – would have had to be funded by the taxpayer. That would have amounted to probably 15% of the annual tax take. In a country that is worrying about hospitals, infrastructure and the like, I am just not sure what the politicians are thinking when they say they should be in the mining game too.

In an Investec study, it quotes that 'the South African government is already creaming approximately 55-80% of the turnover of the average South African mining company in terms of its total take', which is a great deal of money considering the fact that they have taken none of the risk. I would leave you to judge what nationalisation amounts to.

I think this is the most important thing that people have missed about the South African platinum industry. Everyone is focused on margins. They think you are having a very nice time. You have a gross margin of 20% or 25%. What they forget is that the South African mining industry is going deeper. It is getting more costly and there are additional social costs. Grades are declining and the stay-in-business capital – the capital you must spend to replace the ounce you take out today in order to have a productive future – is the iceberg under the water. It is the elephant in the room.

On a post-CAPEX basis, the platinum industry in South Africa is barely making any money right now. The reality is that the market has woken up to this. I am not sure the consumers of these metals have fully awakened to the fact that, unless we get substantial and significant returns for the risks taken, this is all that the shareholders will be left with. By my calculations, it is about 4%. For Julius, that is probably more than enough. I think the reality for us is, for the risks taken, for the effort that goes into mining platinum, returns greater than 3% or 4% are needed.

Business Leadership South Africa quoted a 7% return for the platinum mining industry. At a presentation in New York last week, Ospraie quoted 5%. When you consider that copper, iron ore and maybe even gold produce better returns, it is a reality that prices must move up or the rand must weaken – or both – in order for the world to get enough of this metal in the future for the clean air applications that we heard about earlier today.

Stuart Murray
CEO
Aquarius Platinum Ltd

After obtaining his degree in Chemical Engineering from Imperial College, London, Mr. Murray commenced his career in 1984 with Impala Platinum Holdings Limited. Following a 17-year career in the South African platinum industry, Mr. Murray joined Aquarius Platinum Limited in May 2001 and was appointed Chief Executive Officer.


The conference by the industry for the industry
LBMA Precious Metals Conference 2012
In Association with the LPPM
11-13 November
Grand Hyatt Hotel
Hong Kong
The London Bullion Market Association
13/14 Basinghall Street
London EC2V 5BQ
Tel: +44 20 7796 3067
www.lbma.org.uk
conference@lbma.org.uk
There's a place for all market players at the LBMA (LPPM) Conference – Registration opens in July

DIARY OF EVENTS

NOVEMBER 2011

13
8th Dubai-City of Gold Conference
Almas Tower, Dubai
www.dubaicityofgold.com

14-15
The Gold Symposium 2011 Sydney
Luna Park
Sydney, Australia
www.symposium.net.au

14-16
Commodities Week
New York
www.terrapinn.com

24
7th Heraeus Precious Metals Forum
Hanau
www.heraeus-trading.com

24
MDM Bank & Russian Trading System,
Annual Russian Bullion Seminar
Moscow, Russia

DECEMBER 2011

30/11-02/12
6th China Gold & Precious Metals Summit
Shanghai, China
marketing@igvision.com
www.chinagoldsummit.com

JANUARY 2012

23-26
Mining Exploration Roundup 2012
Westin Bayshore, Vancouver
www.amebc.ca

FEBRUARY 2012

6-9
Mining Indaba Conference
Cape Town International Convention Centre,
Cape Town, South Africa
info@miningindaba.com
www.miningindaba.com

MARCH 2012

1
LBMA Annual Party
London, UK
events@lbma.org.uk
www.lbma.org.uk

13
Bloomberg Precious Metals Conference
New York
www.bloomberglink.com

APRIL 2012

17-21
Denver Gold Group European Gold Forum 2012
Zurich, Switzerland
www.denvergold.org

MAY 2012

14-17
LPPM Platinum Week
London, UK

17-19
World Mining Investment Congress
London
sarah.pegden@terrapinn.com
www.terrapinn.com

JUNE 2012

9-12
IPMI Conference
JW Marriott, Las Vegas
www.ipmi.org

AUGUST 2012

24-26
9th India International Gold Convention 2012
HICC Novotel, Hyderabad, India.
www.goldconvention.in

SEPTEMBER 2012

9-12
Denver Gold Forum 2012
Hyatt Regency, Denver, CO
www.denvergold.org

18-21
Fifth International Platinum Conference,
Sun City, South Africa
www.platinum.org.za

NOVEMBER 2012

11-13
LBMA Precious Metals Conference
Grand Hyatt Hotel
Hong Kong, China

DECEMBER 2012

10
LBMA Silver Anniversary Event
Black tie cocktail reception and dinner
Mansion House, London, UK

LBMA (LPPM) Pr Conference 2011

By Ruth Crowell, Commercial Director, LBMA

In 2010, delegates predicted that the price would be US$1,450 and were US$344 off the actual gold price of US$1,794.00. This year, LBMA delegates predicted that the gold price will be US$2,019 by the time of the next LBMA Conference. Let's hope they have been sufficiently bullish this time round.

The 2011 LBMA (LPPM) Precious Metals Conference was held in Montreal, Canada during the period 18-20 September. The Conference continued to break attendance records for the third year in a row as the 2011 event attracted a total of 535 delegates, from more than 38 countries.

The Conference opened with the Welcome Reception, at the Centre Sheraton, sponsored by the LBMA's Canadian Good Delivery Refiners, Johnson Matthey and Xstrata Canada. The Opening Session featured keynote speaker Pierre Lassonde, Chairman of Franco-Nevada, as well as with remarks from Barbara Ridpath, Chief Executive of the International Centre for Financial Regulation. Stuart Murray CEO, Aquarius Platinum Ltd, won the prize for Favourite Speaker for his speech on The State of The Southern African Platinum Industry. Dr Edel Tully, Global Precious Metals Strategist for UBS, also won the prize for Most Entertaining Speaker. Pierre Lassonde's speech was also voted as the most useful speech in the conference feedback and is reproduced along with Stuart Murray's speech, on pages 3-7 and 8-9 respectively.

ecious Metals
. Review

The most highly rated session was Session 7: Threats, Myths and Opportunities – the Grand Debate. Here Tim Wilson, Managing Director, JPMorgan, orchestrated a commanding performance of serious, thought-provoking, yet entertaining debate. Thanks to all the panellists, who included: Grant Angwin of Johnson Matthey; Trevor Raymond of Anglo Platinum Ltd Capital; and Jon Spall of Barclays Capital.

Conference Dinner & Cirque Eloize Show

Monday evening's festivities celebrated both Canada's northern heritage and Montreal's famous circus tradition. Networking began at the Cocktail Reception, with a special appearance of one of the Royal Canadian Mint's One Million Dollar Coins. Delegates were privileged to be able to pose for pictures with not only one of the five limited edition 100kg gold coins, but also two of Canada's finest Royal Mounted Police officers, dressed in red serge for the occasion.

This was followed by the Conference Dinner at Montreal's historic Windsor Station. Between courses, delegates were treated to a Cirque Eloize – Winter Wonderland show.

Our congratulations and thanks to all the speakers and sponsors involved in the Conference.

Conflict Gold

- *The Good, the Bad and the Ugly*

By John Bullock, Attorney – Precious Metals Specialisation

The following is an edited version of a speech made at the LBMA Bullion Market Regulation Workshop: Responsible Gold held in Montreal on 19 September 2011.

Introduction

Gold has been a beautiful, valuable and desired metal for thousands of years. But the origin of gold, the circumstances of its extraction and the sometimes problematical history of its dealings have never faded from view. Recent years have seen particular attention given to environmental concerns, but also to money-laundering, social responsibility, and more. Now, added to those issues, is a renewed emphasis on the role of gold in inciting human conflict, most specifically in the conflict in Africa. It is an emphasis to which the worldwide gold industries must react with positive attention and effort.

The Ugly: The Democratic Republic of the Congo

"The horror! The horror!"[1] That memorable literary description of conditions along the upper Congo River is a reminder that it has been the scene of brutal conflict for more than a hundred years. For the last 15 years, the Democratic Republic of the Congo (DRC), primarily in its eastern region, has experienced the First and Second Congo Wars. Those wars have at times involved the armies of nine nations[2], multiple ethnic and tribal militias, at times simply marauding bands of armed men who "*kill, abduct, torture and rape civilians, and burn and destroy villages*"[3]. Currently, the worst perpetrators are units of the national army of the DRC, the Forces armées de la République démocratique du Congo (FARDC)[4]. For the local populace, there has been little difference among them[5]. Millions of people have died in the Congo wars, many from disease and starvation[6]. Mass rape has been regularly used to intimidate and control the population[7], and even now, five years after the 'peace accords' and the end of formal war, and with the presence of UN peacekeeping forces, an estimated nine percent of the population of the war-torn area is the victim of sexual violence annually[8]. As the UN Group of Experts recently reported: "*All parties to the conflict continue to commit frequent and flagrant violations of international humanitarian law, many of which involve the targeting of (non-combatant) women or children.*"[9]

The UN Group of Experts says that "in the Kivu provinces, it appears, almost every mining deposit is controlled by an armed group".

The Bad: Gold in the Middle

The Congo Wars started in 1996 when ethnic civil war in Rwanda spilled over into eastern DRC, and the brutal warfare between Tutsi and Hutu armies became international. But after toppling the Mobutu government in Kinshasa in 1997, conflict in the eastern DRC didn't end; it settled into a seemingly endemic condition, with no government able or willing to stop it. And gold is a factor in that condition. The DRC has large reserves of easily mined minerals and their exploitation has long been a prime activity in that country, dating back to Belgian King Leopold in the 19th century, to 20th-century national independence under Mobuto[10], to the present day. The mining of DRC mineral reserves has historically created a great deal of wealth, albeit primarily for a very small number of people. The mines are now increasingly controlled by armies and armed groups, although mined by a desperate and vulnerable population, and their products are stolen from that population to feed appetites for guns and wealth. The UN Group of Experts says that *"in the Kivu provinces, it appears, almost every mining deposit is controlled by an armed group"*[11]. Beyond direct control, there are protection fees paid by mining pit managers, forced civilian labour, theft and extorted illegal 'taxes', *"an increase in pillaging and looting attacks by armed groups on mineral traders or transporters"* and *"use of intermediaries to invest and purchase minerals"*[12].

1. Joseph Conrad, Heart of Darkness, dying words of trading company agent Kurtz to narrator Marlow. The conflict mineral of that day was ivory.
2. In addition to the DRC itself: Angola, Burundi, Chad, Libya, Namibia, Rwanda, Uganda and Zimbabwe.
3. U.S. Department of State, 2010 Human Rights Report: Democratic Republic of the Congo, April 2011
4. United Nations Group of Exports on the DRC, Final Report – S/2010/596, November 2010; Tony Gambino, Background Case Study: Democratic Republic of the Congo, World Bank, World Development Report 2011, p.11: "The Congolese Army continues to commit horrible abuses against civilians, including sexual violence" and p.12: "the primary perpetrator of these abuses today is the Congolese Army itself".
5. A number of militia groups have been nominally incorporated into the national army, without effective change of control. One of its most prominent generals, Bosco Ntaganda, has been under indictment by the International Criminal Court for five years, for war crimes committed as a militia warlord, but walks free in Goma. ICC Case: ICC-01/04-02/06.
6. International Rescue Committee, "While the precise number will never be known – it is clear that millions of people died unnecessarily because of the war."
7. "All parties continued to use mass rape and sexual violence with impunity, often as weapons of conflict, and to humiliate and punish individuals, victims, families, and communities." U.S. Department of State, 2010 Human Rights Report: Democratic Republic of the Congo, April 2011.
8. United States Government Accountability Office, Report to Congressional Committees, The Democratic Republic of the Congo, Information on the Rate of Sexual Violence in War-Torn Eastern DRC and Adjoining Countries, July 2011, citing a study by McGill University, August 2010.
9. UN Group of Experts, Interim Report - S/2011/345, June 2011, para. 92.
10. Gambino, Background Case Study: Democratic Republic of the Congo, 2011, p.3. Under Mobutu, "the government existed as a structure for individual enrichment and patronage".
11. UN Group of Experts, 2010 Interim Report - S/2010/252, May 2010, para 77
12. UN Group of Exports, 2010 Final Report – S/2010/596, November 2010, para 173.

In terms of worldwide production, DRC gold is almost insignificant. The U.S. Geological Survey has estimated DRC annual mine production most recently at 2 tonnes[13]. Another informed estimate of DRC national production is 8 tonnes[14]. In the conflict-affected eastern region, one estimate is 6.5 tonnes[15]. A leading human rights NGO has estimated 5 tonnes[16]. The UN Group of Experts, with on-the-ground investigators, has said that 4 tonnes of gold are produced in North and South Kivu Provinces[17], the principal area of conflict and control by armed groups[18]. That amount is less than one-tenth of one percent of global production of more than 4,000 tonnes. But looking at the DRC from the global view can be misleading; even 4 tonnes of gold has a current London market value in excess of US$200 million, and in the country with the world's lowest per capita GDP[19], that is significant. And it is a significant source of funds for armed groups; gold has been repeatedly cited by the UN Group of Experts for its association with DRC conflict[20]. Thus what seems to be a small amount of gold to the world gold industry nevertheless pays soldiers, and buys guns, bullets and luxury goods.

Governments have seemed to be helpless in the face of these circumstances. Even after a decade of United Nations, United States and EU involvement, *"eastern Congo's provincial governments as of mid-2010 still struggle to perform basic governance tasks"*[21] and *"armed groups…continued to control hundreds of more remote mining sites and to pillage mineral markets, traders or transporters…[with] widespread involvement of criminal networks within FARDC in natural resource exploitation"*[22].

And that exploitation has been tied to the atrocity, by *"a nexus between the illicit exploitation of natural resources by armed elements and patterns of sexual violence"*[23]. The inability of national, regional and international governments to deal with this utterly failed state has led to a search for other possible approaches, and some now see the private sector as holding a key to a solution – cut off the finance of armed groups, by ending their participation in mineral transactions. Of particular interest, some DRC minerals are very important for modern industrial societies: tin, tantalum, tungsten and gold. And so industries that use these minerals, especially multinational industries that sell products to consumers, have become the target of campaigns to save the DRC through private sector control of its economic base.

Most of the private sector has no idea of the mining sources of the minerals that it uses, and so the efforts to break links between consumer goods and DRC mines must begin with finding those links, through supply chain due diligence.

Most of the private sector has no idea of the mining sources of the minerals that it uses, and so the efforts to break links between consumer goods and DRC mines must begin with finding those links, through supply chain due diligence. In its final report of 2009, the United Nations Group of Experts recommended *"that the Security Council request Member States to take necessary measures to clarify the due diligence obligations of companies under their respective jurisdictions which operate in the Democratic Republic of the Congo mineral trading sector. The Group further recommends that Member States request companies to adopt codes of conduct detailing the procedures adopted to prevent indirect support to non-governmental armed groups through the exploitation of natural resources"*[24]. Last year, the United States Congress declared gold, wherever its origin might be, to be a *"conflict mineral"*, and directed that the use of gold in all products manufactured by U.S. publicly traded companies be publicly reported[25]. Furthermore, if the origin of that gold is the DRC or any adjoining country – an area comparable to the 48 contiguous states of the United States, with a population of 200 million – the Congressional directive is that a detailed audited report of its relationship to conflict must be submitted to the U.S. Securities and Exchange Committee (SEC). Congress based this requirement upon its *"sense that the exploitation and trade of conflict minerals originating in the Democratic Republic of the Congo is helping to finance conflict characterised by extreme levels of violence in the eastern Democratic Republic of the Congo, particularly sexual- and gender-based violence, and contributing to an emergency humanitarian situation."*

And the concern with conflict has reached, at least potentially, well beyond the DRC. The Organisation for Economic Cooperation and Development (OECD) has turned its attention to the extraction of minerals in conflict circumstances, in unnamed countries but wherever they might be or arise, and has adopted and issued a guidance for governments and industries regarding what they should do: *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas*[26]. The Guidance is made expressly applicable to gold[27].

The consequences of gold being a *"conflict mineral"* are substantial. Estimates of the cost of Dodd Frank Act due diligence vary widely, but are likely to be in the billions. The U.S. Securities and Exchange Commission, in its proposed regulation to implement the requirement, estimated the total economic burden of due diligence and reporting to be only US$46 million[28], but the National Association of Manufacturers estimates the total to be at least 20 times higher: US$9-16 billion[29]. Beyond the direct economic cost of due diligence are the broader consequences, not least the unintended shame, of being associated with atrocities. The UN Group of Experts has declared its intent *"to identify the domestic,*

13. USGS Minerals Yearbook 2009, Table 8.
14. Philip Olden, Implications for the Supply Chain of Gold and Other Precious Metals, Report to OECD, August 2010, citing GFMS for 2009.
15. BSR, Conflict Minerals and the Democratic Republic of Congo, May 2010
16. The Enough Project, reported by CBS News – 60 Minutes
17. UN Group of Exports, 2010 Final Report – S/2010/596, November 2010, para. 293.
18. "In North and South Kivu, the illegal exploitation and trade of natural resources by armed actors, including criminal elements of the FARDC, continued to prolong the conflict, facilitate the purchase of small arms to commit abuses, and reduce government revenues needed for increasing security and rebuilding the country." U.S. Department of State, 2010 Human Rights Report – Democratic Republic of the Congo
19. International Monetary Fund, World Economic Outlook Database-April 2011; World Bank, World Development Indicators.
20. UN Group of Exports, 2010 Final Report – S/2010/596, November 2010, para. 38, 49, 68, 84, 119, 133, 178, 180, 181, 185, 197, 199, 201, 203, 204, 205, 207, 210, 212, 218, 219, 225, 226, 227, 229, 230, 231, 232, 234, 235, 240, 241, 243, 245, 246, 247, 287, 293-302.
21. Gambino, Background Case Study: Democratic Republic of the Congo, 2011, p.7.
22. UN Group of Experts, Interim Report - S/2011/345, June 2011, para. 64.
23. Margot Wallström, UN Special Representative on Sexual Violence in Conflict, quoted in U.S. Department of State, 2010 Human Rights Report: Democratic Republic of the Congo, April 2011
24. UN Group of Exports, 2009 Final Report – S/2009/603, November 2009, recommendation 6.
25. Dodd Frank Wall Street Reform and Consumer Protection Act, Section 1502. The law declares that ores of tin, tantalum, tungsten and gold, and their derivative products, are "conflict minerals" for which countries of origin must be investigated.
26. Adopted May 2011.
27. A Gold Supplement with more detailed and mineral-specific guidance is being prepared. The OECD Guidance as adopted contains specific guidance in a supplement for tin, tantalum and tungsten, but gold was considered so different that a separate working group has been created to write a supplement.
28. SEC: "We estimate the PRA burden for the audit and due diligence requirements to the industry would be approximately $46,475,000." 75 FR 80966, December 23, 2010
29. NAM comment to SEC, http://sec.gov/comments/s7-40-10/s74010-183.pdf, p 2, 23-28

regional and international buyers, brokers and financiers that directly or indirectly facilitate armed actors' involvement in resources trade and make it profitable"[30]. Margot Wallström, UN Special Representative on Sexual Violence in Conflict, very recently called for punishment: *"Those who [trade in conflict minerals] should face consequences from national police and international sanctions regimes."*[31] The UK government aligns the conflict minerals issue to action under the very stringent UK Bribery Act[32]. Because of the direct involvement of the national DRC military in conflict and human rights abuse, U.S. Government action under the Foreign Corrupt Practices Act (FCPA) is a possibility. And even if governments hold back in their enforcement, private litigation against a supply chain participant may include claims of involvement in human rights abuse under the Alien Tort Statute, claiming a *"violation of the law of nations"*[33]. And there is as well a strident campaign by non-governmental organisations and 'activists' to attack and damage the reputations of manufacturing corporations that use conflict minerals, through shareholder scrutiny, negative media and consumer boycotts.

The Good: Gold Industry Initiatives

The formal gold industry is not a part of the DRC conflict gold supply chain, at least not intentionally. DRC gold is mined artisanally, informally and illegally, and is smuggled out of the country, primarily to Dubai.[34] But gold is a fungible commodity that trades internationally in thousands of daily transactions, among some parties who are unconcerned with the circumstances of its origin, even when they know of it. Even with the efforts of the formal gold industry to avoid involvement with the DRC, suspicion remains.[35] And not entirely without justification; earlier this year, a United States-registered, Houston, Texas-based Gulfstream jet was stopped just before takeoff on the runway at Goma, North Kivu, carrying 435kg of gold, intended destination unknown. If a jet airplane that is capable of intercontinental flight can land and take off at Goma airport, there are no destinations beyond the range of DRC conflict gold.

This reality is being addressed in a number of worldwide gold industry initiatives. The Responsible Jewellery Council (RJC), the World Gold Council (WGC) and the London Bullion Market Association (LBMA) have each launched or amended existing initiatives to encompass conflict, and to guide gold supply chain due diligence. And an electronics industry initiative, responding directly to the U.S. Dodd Frank Act, has created its own initiative to investigate, audit and certify gold used by manufacturers of electronic devices as DRC conflict-free.

Over the next six months, there will be a great deal of activity by governments, intergovernmental bodies (OECD, UN) and industry organisations to address and bring some order to the association of gold with conflict and abuse of human rights.

The RJC is a worldwide association of more than 300 mines, refiners, manufacturers and retailers that several years ago established a code of practice for its members, based upon a full range of corporate social responsibilities: business ethics, human rights, and social and environmental performance. The RJC requires that its members' operations and practices be verified by its accredited auditors to a comprehensive standard, and certifies their compliance. The RJC is developing an additional chain-of-custody standard for transactions among its members, to add additional assurance that gold is responsibly produced and conflict-free, with an anticipated completion in early 2012.

The WGC, a worldwide association of gold-mining companies representing the majority of gold mined throughout the world, has issued a draft Conflict Free Gold Standard that declares its principles to be respect for human rights, no involvement with armed groups, transparency of government payments, and acceptance of only gold that conforms to those principles. The WGC Standard requires that a company assesses its area of operations for conflict, assesses itself for policies, systems and management skills to avoid conflict, and ensures responsible conflict-free management at all stages of production: mining, transport and refining. As with the RJC, the WGC anticipates completion and initial application of its standard in early 2012.

The LBMA, an association that accredits the highest tier of gold refiners – with 61 refiners on six continents designated as Good Delivery – has created a draft Responsible Gold Guidance. This guidance is directed at its LBMA-accredited refiners, and will require that they be conflict-free in their operations and sourcing, with verification by a third-party audit. The LBMA Guidance follows the general structure recommended by the OECD: create a strong management system; assess risks associated with all sources; respond to and mitigate risk, especially risk associated with conflict; engage an independent third-party audits of those efforts; and publicly report the audit results. The LBMA anticipates application of this requirement as of 1 January 2012, with implementation to follow during the year.

The electronics industry response is being carried out by two non-profit organisations: the Electronic Industries Citizenship Coalition (EICC) and the Global e-Sustainability Initiative (GeSI). EICC-GeSI has formed a Gold Working Group with gold industry participation and has created a Gold Refiner Audit Protocol. This initiative is directed squarely at Dodd Frank Act compliance, and

30. UN Group of Experts, Interim Report, S/2011/345, June 2011, para 65
31. Letter to the New York Times, Aug. 11, 2011; Ms. Wallström's letter was then endorsed by a coalition of human rights organisations that included it a comment to the SEC, August 24, 2011.
32. http://www.fco.gov.uk/en/global-issues/conflict-minerals/intro-to-conflict-minerals/
33. See, for example, Doe VIII v. Exxon Mobil Corp., No. 09-7125, 2011 WL 2652384 (D.C. Cir. Jul. 8, 2011), in which residents of Indonesia claimed human rights abuse by members of the Indonesian army who provided security to an Exxon gas operation, and asserted that Exxon aided and abetted such abuse.
34. "The Group has investigated networks that transport gold from the eastern part of the Democratic Republic of the Congo through regional capitals such as Kampala to refineries in the United Arab Emirates and Hong Kong, and considers it likely that other networks may be transporting it elsewhere too." UN Group of Exports, 2010 Final Report – S/2010/596, November 2010, para. 296.
35. "The Group is also aware that many refineries worldwide have policies in place to refuse to buy gold from the Democratic Republic of the Congo, or indeed from anywhere in the Great Lakes and East African regions where they do not know its precise origin. Yet traceability once gold leaves a refinery is, in the opinion of gold experts, impossible, unless the refinery is treating gold from a single source. Even then, it seems, there is a strong likelihood that refined gold from a single source will at a later date be blended with gold from other sources." UN Group of Exports, 2010 Final Report – S/2010/596, November 2010, para. 296

thus at conflict gold from the DRC. It too is grounded in the OECD structure, with the expectation that gold refiners will create strong management systems and will assess all of their sources for risks. The EICC-GeSI protocol then looks at four geographical zones, based upon proximity or association with the DRC, with increasing levels of risk assessment and due diligence, ranging from normal commercial practices to on-ground assessments and DRC site audits. As with the RJC, WGC and LBMA initiatives, an independent third-party audit to verify high standards of due diligence is required. The EICC-GeSI Gold Refiner Audit Protocol is anticipated to be complete before the end of 2011.

All of these initiatives vary somewhat in their approach, but all are now collaborating with the others, so that gold industries' efforts to be conflict-free, and verifiably so, can be both rigorous and efficient as well as productive. All of these industry initiatives are also actively participating in the OECD Gold Working Group, so that the *OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas* and the forthcoming Gold Supplement, anticipated in early 2012, will continue to be a central point of focus and collaboration.

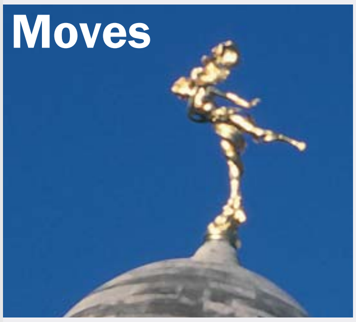
Concerns and Conclusions: What's Next?

Over the next six months, there will be a great deal of activity by governments, intergovernmental bodies (OECD, UN) and industry organisations to address and bring some order to the association of gold with conflict and abuse of human rights. There are still issues of particular concern in this activity. Beyond the DRC, what other areas of conflict and high risk might require application of enhanced due diligence? This is a very serious question for many stakeholders, because the designation of the DRC as such an area has created a flight of industry from it and a *de facto* boycott that has exacerbated the economic difficulties of the region. So while there is concern to prevent gold from finance of conflict, there is as well a concern that honest production of gold and the well-being of people and countries not be unduly damaged. That concern arises especially in the circumstances of artisanal mining, which is both vulnerable to conflict and abuse of human rights, and not capable of the high levels of organisation and formality that enhanced due diligence seeks.

So the efforts being made now with attention to the DRC are also learning experiences, guiding all participants in what might be done in other circumstances, and what should not be done. It is understood that the DRC conflict is horrendous and also, unfortunately, that it is not ending soon. These are very long-term undertakings. But it should also be understood that a direction has been set: there is certain to be a greater expectation of gold supply chain due diligence, by all participants in gold industries, from mine to investment to retail. Law and guidance to require such due diligence are being prepared now, as are gold industry tools for response. The primary conclusion for gold industries is to participate where possible and in every case to watch closely for developments.

John Bullock
Attorney – Precious Metals Specialisation
Private Practice
John Bullock is a United States attorney with a twenty-five year specialisation in precious metals. He has provided in-house and outside legal counsel to precious metals companies, industry associations and governments, and for 20 years has been Chair of the Environmental and Regulatory Affairs Committee of the International Precious Metals Institute. In the new area of conflict gold, he is an active participant in initiatives of the LBMA, the intergovernmental Organisation for Economic Cooperation and Development, the electronics industry, the Responsible Jewellery Council and the World Gold Council.

Market Moves



Matthieu Tirant to Commerzbank AG Luxembourg

Matthieu Tirant joined the PM desk of Commerzbank AG Luxembourg as a physicals trader on 1 September, 2011. He will be strengthening the physical team led by Diana Kratz.
Matthieu started his banking career at Société Générale in Paris as documentation analyst; he then moved in 2008 to Commerzbank AG London as trade support analyst. His latest assignment was trade support for Precious metals desk in Luxembourg.

Nick Hammond to Baird & Co

Nick Hammond has joined Baird & Co, as Chief Operating Officer. With 20 years' experience in the private wealth arena and an MBA from Columbia, Nick joins Baird from C. Hoare & Co, where he ran the Knightsbridge Office, and prior to that he was Head of Portfolio Management.

Paul Beesley to Baird & Co

Paul Beesley has joined Baird & Co. from Fastmarkets (thebulliondesk.com). Paul will be responsible for Private Client sales. Previously, he was with Mocatta & Goldsmid for nearly 20 years.

Mike Marsh has retired from Baird & Co. Mike spent over 35 years in the bullion market starting with Johnson Matthey Bankers. He was twice at ScotiaBank and Deutsche Bank for several years.
We wish Mike a long and happy retirement in Australia, where has emigrated to be near his grandchildren.

Kenji Kusaga to Metalor Technologies Japan Co

Kenji Kasuga has become president of Metalor Technologies Japan Co., following the acquisition of NECC coating business by Metalor. Kasuga san has over 30 years' experience in operation and general management with NECC in precious metal coating and catalyst business. With his new role, Kasuga san will lead the development of chemical business in Asia. He reports to Jacques Michel, Executive Vice President of the Advanced Coatings division of Metalor Group.

Regulation Update - Responsible Gold

By Ruth Crowell, Commercial Director, LBMA

The LBMA continues its work on gold supply chain regulation by engaging with the SEC, OECD and various industry bodies, and through developing the Responsible Gold Guidance for LBMA Gold Refiners.

In October, the LBMA attended the SEC's roundtable on conflict minerals and submitted two letters to the SEC focusing on bullion market concerns regarding the upcoming legislation. To ensure that the LBMA Responsible Gold Guidance works in conjunction with the other industry initiatives, the LBMA is also working closely with the World Gold Council, Responsible Jewellery Council and the EICC. In October, the WGC, RJC and LBMA submitted a joint letter to the SEC, showing its support for the OECD Due Diligence Guidance and the forthcoming Gold Supplement. The LBMA is heavily involved in the drafting of the OECD Gold Supplement, which is expected to be published in early December.

LBMA Responsible Gold Guidance

In order to ensure that all LBMA GD refiners' Good Delivery bars are free from conflict gold, the RAC and the Referees have developed guidance on the due diligence to demonstrate this. It is envisaged by the RAC that the LBMA Guidance should form a foundation of legal compliance that is credible to the outside world and feasible for all Good Delivery Refiners. The LBMA Guidance formalises and consolidates existing high standards of due diligence amongst all LBMA Good Delivery Refiners. This new requirement of Good Delivery is an extension of the existing accreditation systems in place, which currently monitor refiners' financial standing as well as their ability to produce cast and assay Good Delivery bars.

Outline of LBMA Responsible Gold Guidance

Based on OECD five-step framework

Step 1: Set up strong management systems

Step 2: Identify and assess risks in the supply chain

Step 3: Design and implement a strategy to respond to identified risks

Step 4: Arrange an independent audit of the due diligence

Step 5: Publish a report on policy and actions

The drafting of the Responsible Gold Guidance is now at an advanced stage. The LBMA is holding a series of meetings with GD Refiners in China, Russia and Japan to gain feedback on this guidance. In particular, the LBMA is continuing to work on the artisanal mining section of the Guidance. A final draft of the Guidance will be circulated to all GD Refiners by 15 December. For a copy of the current guidance, please visit **www.lbma.org.uk**. Adherence to the Responsible Gold Guidance will become an official requirement for Good Delivery on 1 January 2012.

The Guidance is based primarily on the OECD Due Diligence Guidance issued in December 2010 as well as existing Anti-Money Laundering Regulations. The structure of the guidance closely follows the OECD five-step framework for risk-based due diligence in the mineral supply chain. Where there is higher risk, then more due diligence is required and vice versa.

Adoption & Implementation Timeline

Dec 2011	Expected Publication of OECD Gold Supplement
15 Dec 2011	LBMA will publish final Responsible Gold Guidance
1 Jan 2012	LBMA Guidance becomes an official requirement of Good Delivery
13 Jan 2012	Deadline for LBMA GD Gold Refiners to indicate they accept and will implement the guidelines
31 Dec 2012*	First Voluntary** GD Refiner Audit Reports for 2011 due
31 Dec 2013*	First Mandatory GD Refiner Audit Reports for 2012 due

* For some refiners, this may be 30 April, as an LBMA Audit Report will be due no later than one year after the closing of the refiner's financial books.

** While an audit report for a refiner's 2011 production is not mandatory, it is encouraged, particularly for refiners who need to meet Dodd Frank requirements.

ISTANBUL GOLD REFINERY
IGR
MELTER & ASSAYER

ISTANBUL GOLD REFINERY

Precious Metal Management

- Conveniently located by the International Airport in Istanbul, we are a well financed refinery with an excellent reputation.
- Istanbul Gold Refinery (IGR) is ISO 14001 certified and recognized by the Republic of Turkey Ministry of Environment and Forest for its commitment to national environmental protection.
- IGR possesses quickest turnaround for all your mining needs. IGR has a capacity to operate 24/7 all year around which enables IGR to finance large lots with fast payments.
- Customers of IGR may observe their material being processed at any time from start to finish.
- Staff at IGR is truly dedicated to customer service and is ready to exceed your expectations.
- IGR refines and recycles materials from the Jewelry and Mining we have the expertise and capacity to handle precious metal lots of any size or type. Rapid settlements, accurate assays, fastest payment and dedicated staff.
- IGR consistently provides the most accurate returns because of an efficient and precise sampling techniques and analysis.

IGR's technical expertise, along with, state-of-the-art refining facility ensures superior treatment of all precious metal refining lots. Istanbul Gold Refinery Corporation is the largest and fastest growing precious metal refinery in Turkey.

LBMA

ISTANBUL GOLD REFINERY

Administration: Kuyumcukent kompleksi, 7 No'lu Fabrika 34197 Yenibosna/İstanbul

Tel: (0212) 603 01 01 Fax: 0212) 603 01 10

Branch Office: Kapalıçarşı, Molla Fenari Mah. Aynacılar Sok. No:18 34440 Eminönü/İstanbul

Tel: (0212) 520 34 34 Fax: (0212) 527 21 41

✓ISO 14001 ✓ISO 9001:2000 ✓ISO 18001:2007

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Associates

On 27 September, 2011 Blackrock Inc. of the USA was admitted as an Associate.

On 29 September, 2011 the following four companies were admitted as Associates: Al Bahrain Jewellers of UAE, Ohio Precious Metals LLC of the USA, Shree Ganesh Jewellery House Ltd of India and Zaveri Pvt Ltd of India.

On 1 November, 2011 the following three companies were admitted as Associates: United Precious Metal Refinery Inc of the USA, Mastermelt Ltd of the UK and Bullion Management Group Inc of Canada.

On 15 November, 2011 Nomos Bank, OJSC was admitted as an Associate.

On 16 November, 2011 Industrial & Commercial Bank of China (ICBC) was admitted as a Full member.

These additions brought the membership to a total of 135 companies, comprised of 61 Full Members (of which 11 are Market Makers), 70 Associates and four Affiliate Members.

GOOD DELIVERY LIST

The Istanbul Gold Refinery was added to the Gold List on 8 September, 2011.

COMMITTEES

Management

The Committee met in September directly after the annual Conference. As usual, the Committee's work largely consists of reviewing and guiding the work of the subcommittees and making decisions based on their recommendations. A particular focus in recent meetings has been the formulation of a policy on 'conflict gold' based on discussions in the Regulatory Affairs Committee and with representatives of the Referees group. See the Regulatory Affairs Committee section.

The Committee reviewed the success of the 2011 Conference (see review on pages 12-13) and looked into plans for a larger event in Hong Kong during the period 11-13 November, 2012. The Committee also discussed plans for the LBMA Silver Anniversary in late 2012. The Committee agreed to hold a cocktail party and a special black tie dinner on 10 December 2012 to mark the founding of the LBMA in 1987.

The Committee has also agreed that, rather than holding a Bullion Market Forum in New York early in the New Year, as had previously been discussed, the LBMA should focus instead on organising meetings with US regulators.

Regulatory Affairs

The RAC met in October to discuss a variety of regulatory issues. These included primarily the LBMA Responsible Gold Guidance as well as the LBMA's work within the OECD Working Group on Conflict Gold. The LBMA's Responsible Gold Workshop held in Montreal directly following the Conference was very well attended and allowed a broad and open discussion of this issue by GD refiners and other members of the market. In late November and early December, the Chief Executive will be meeting GD refiners in Moscow Shanghai and Tokyo to inform them about the latest developments on this very important topic as well as getting feedback from them on the LBMA's proposed Responsible Gold Guidance, a draft of which was circulated to all GD refiners on 26 August, 2011.

For more on the LBMA Responsible Gold Guidance and other regulatory issues facing the precious metals market, see the Regulation Update on page 18.

Physical

The Committee has met each month this year with the exception of August. The work of the Committee, other than GDL applications and Pro-Active Monitoring, has focused on vaulting. A meeting of London vault managers took place in October. Amongst other things, these meetings allow vault managers to ensure that a consistent approach is taken to the important issue of physical bar quality. The October meeting focused on the quality of assay marks on silver bars, the development of an expanded version of the LBMA's publication providing a visual guide to the acceptability of GD bars and the possibility of providing the vaults with photographs and drawings of GD refiners' kilobars. Kilobars are not an acceptable form of gold for settlement of loco London contracts, but they do feature in the trading of a number of members. As a result, some of the vaults may be storing these bars. The Executive is now looking at the practicality of collecting information from GD refiners about their currently produced kilobars.

Public Affairs

Following the announcement of the vacancy on the Committee in the last issue of the Alchemist, four applications for the position were received. The Management Committee subsequently accepted the PAC's recommendation that David Jollie of Mitsui should be invited to join the Committee.

The Committee's work has been dominated by intensive discussions on the speaker programme for the successful Montreal Conference (see review on pages 12-13). Recently, the Committee has reviewed the feedback from the 2011 event in order to assist the planning of next year's conference in Hong Kong. In particular, the Committee has agreed to make the 2012 conference last a full two days as well as to investigate further networking opportunities. This is in response to the continued growth in the number of delegates attending and the need to have more efficient ways of fostering contacts between them. The Committee continues to welcome suggestions from the market as to other ways to improve the value of the Conference to the members and their clients. Please contact the Executive if you have any suggestions.

Finance

The Committee met in September to review the three-year forecast in light of the income and expenditure for Q1 to Q3 2011, particularly in relation to the successful Conference in Montreal. The Committee also reviewed the budget implications for the Executive's move to somewhat larger premises, which it is hoped will take place in early 2012. The LBMA has grown significantly in the 10 years since moving to Basinghall Street and the Management Committee has agreed in principle to relocating with a view to having more space for the staff and better meeting facilities for visitors.

Referees

The Referees group held its regular quarterly meeting in Ottawa directly following the LBMA Conference in Montreal. The main items discussed were the proficiency testing scheme for gold fire assayers, the development of new gold reference materials suitable for X-Ray fluorescence analysis and the introduction of scientifically determined allowed criteria for permitted bias in assay tests (both for applications for accreditation and for the proactive monitoring of 999.9 gold refiners).

The proficiency testing scheme will be implemented in early 2012 and will allow participants to compare the accuracy of their fire assaying with their peer group. It is expected that around 40 GD gold refiners will participate. The results will be compiled by the UK agency, FAPAS, which has

very extensive experience in proficiency testing in the area of food and beverages.

VAT Group
Discussion has continued within the VAT Group about the development of a new Memorandum of Understanding on the VAT treatment of bullion market transactions. The aim is to produce a document that will cover both the LBMA and LPPM metals and that will be accepted by both these markets and by HM Revenue and Customs as a practical guide for members. This discussion has been protracted because of the need to resolve two difficult issues (relating to the storage of allocated precious metals other than gold and transactions between non-members that are under the effective physical control of members). It is hoped that a final version of the MOU will be available for distribution to all members early in the New Year.

GDL Commercialisation
NYSE Liffe US LLC has become the first exchange to be licensed to use the LBMA Good Delivery List as part of its own accreditation arrangements. The LBMA is grateful to NYSE Liffe for this expression of confidence in the value of the List and for its support of the LBMA's Good Delivery work.

Committee Vacancy
Jeremy East transferred from the Finance Committee to become the Management Committee's representative on the Membership Committee. There is therefore a vacancy on the Finance Committee. Anyone from a member company interested in applying should send an email to the Chief Executive with a brief statement of their bullion market experience.

Annual Party
And now for something completely different: a most important date for the diaries of all Members and Associates. The unmissable event of the bullion market year, the LBMA's annual party, will take place on 1 March, 2012. Details of the venue will follow in the next issue of the Alchemist.

London Precious Metals Clearing Limited

London Precious Metals Clearing Limited has announced that the cut-off time for the acceptance of transfer instructions on Friday 23 December and Friday 30 December, 2011 will be 14:00 G.M.T.

The London Gold Market Fixing Limited

The London Gold Market Fixing Limited has announced that there will be no afternoon gold fixings on Friday 23 December and Friday 30 December, 2011.

Obituary

Douglas Bull, pictured far left, with colleagues at the 1990 LBMA biennial dinner

Douglas Bull

It is with great regret that we announce the death of Douglas Bull, at the age of 75. Doug worked in the London Bullion Market in the 1970s and 1980s for the merchant bank Samuel Montagu, an original member of the London gold and silver markets.

Doug joined Montagu from Eastern Bank in 1966 and, after managing the foreign exchange back office, joined the precious metals dealing team in the early 1970s, becoming head dealer, later rising to director. He was intelligent, decisive and a well-respected member of the market. He retired from City life in 1991.

Doug was, amongst other things, a talented amateur footballer, keen golfer, bridge player, Sudoku solver and dancer.

He died following a long, brave fight against illness and leaves his wife, Shirley, daughter Suzanne and two grandchildren. His son, Robin, died in an accident in the USA aged 22.

By Terence McNelly, who worked with Douglas Bull as Assistant Director of Precious Metals at Samuel Montagu.

facing facts

William Tankard, Matthew Piggott,
Oliver Heathman, George Coles
and Mark Fellows
Thomson Reuters GFMS

Global Gold Mine Production: The Boom Continues to Gather Pace

Thomson Reuters GFMS recently published its *Gold Survey: Update 1* report, which analyses the evolution of the gold market so far in 2011. This article summarises key points relating to gold mine production from that report.

Gold mine production continued to increase in the first half of 2011, rising by 5%, or 63 tonnes, relative to H1 2010. Growth varied somewhat from region to region, with the strongest growth coming from Africa and the CIS, as new projects lifted production in Burkina Faso, Eritrea and Kazakhstan. The most significant losses were recorded in Peru and Indonesia.

South Africa

There was a pause in the almost decade-long trend of falling gold production from South Africa in the first half of 2011, with output essentially flat year-on-year, at 98 tonnes. Although moderate production losses were recorded at several operations, mostly due to restructuring, but in some cases as a result of section 54 stoppages, there were sufficient improvements to offset these, largely from continued build-up from underground projects. Notable production growth was recorded at Modder East and South Deep, with lesser gains at Kusasalethu (formerly Elandsrand) and Burnstone.

Australia

On the back of strong growth last year, Australian production grew by a further 4% to 129 tonnes in the first half of 2011. Production from a number of brownfield redevelopments contributed to the rise, as White Dam, Edna May, Bronzewing and Carosue Dam, all of which recommenced production in 2010, added nearly three tonnes, while Randalls, the only notable greenfield development to come online in 2010, added over a tonne after pouring first gold in September 2010. Gold production at Olympic Dam more than tripled, having been previously severely hampered by damage to the main shaft.

Offsetting this growth were a number of losses at more established operations, including Sunrise Dam, which was severely impacted by flooding, and Telfer, where production fell by two tonnes.

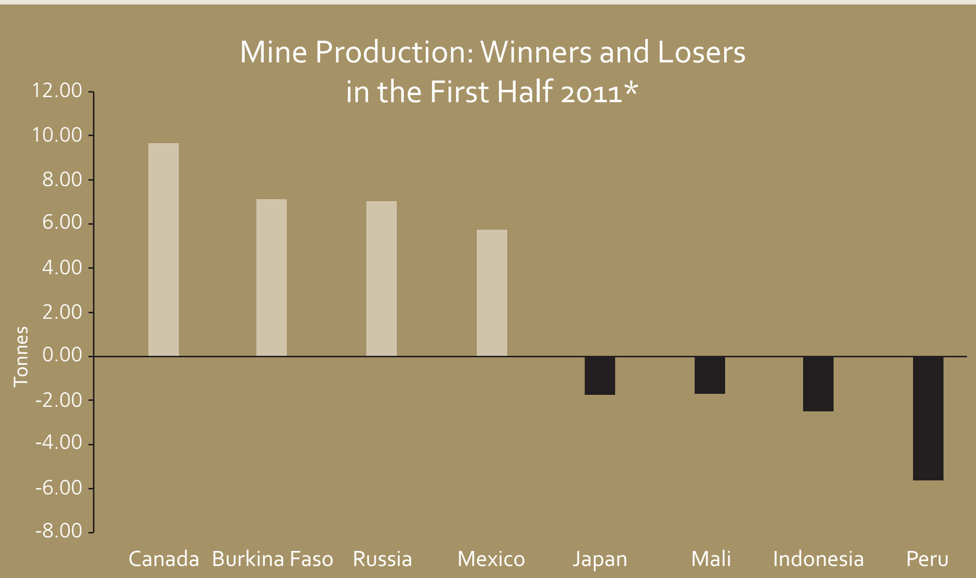
North America

Mine supply from the **United States** totalled 115 tonnes, an increase of 1% year-on-year. Output at Newmont's consolidated Nevada operations and Bingham Canyon both fell by two tonnes due to a fall in ore grades. Production at Cortez increased by nearly seven tonnes, the largest increase of any mine globally this year, as environmental operating restrictions were lifted.

Canada saw the largest country-level increase globally, as production climbed by 22% to 53 tonnes. Fresh production from Canadian Malartic and La Ronge added two tonnes in aggregate, in spite of both only declaring commercial production in the second quarter of 2011. Gold production at Vale Inco's Sudbury operation climbed to four tonnes, in marked contrast to last year, when production was severely hampered by strike action.

China

Chinese gold mine supply increased by five tonnes, or 3%. The increase came from a 16% rise in output from the country's gold smelters, which treat ores from numerous producers. The country's gold production from non-ferrous metal smelters fell slightly, by 2%. China's larger listed domestic miners fared worse as a group, however, with output falling by 4% driven by Zijin Mining, which reported a 10% fall in mine production from the Zijinshan, Hunchun and Guizhou Shuiyindong units.



* Figures represent year-on-year change, i.e. H1 11 less H1 10
Source : Thomson Reuters GFMS

Rest of the World: Winners and Losers

Elsewhere, with the exception of Europe, all regions registered increases year-on-year.

Africa achieved the largest regional increase, as strong gains in **Burkina Faso**, **Eritrea** and Ghana were only slightly offset by small declines in Mali and Mauritania. Burkina Faso was primarily boosted by five tonnes of fresh supply from Essakane, which entered production in mid-2010, while the continued ramp-up of Inata added over a tonne. In Eritrea, the start of commercial production in February at the Bisha polymetallic mine lifted mine supply from modest levels to around six tonnes in the first half. In addition, output in **Côte d'Ivoire** climbed by three tonnes as the ramp-up of Tongon more than outweighed losses at a number of the country's other mines, where operations were suspended as political tension in the country escalated earlier this year.

Mine production in **Ghana** rose by 9%. Output from the country's second-largest gold mine, Ahafo, rose by over two tonnes, while the Nzema project poured first gold in January, adding over a tonne of fresh supply by mid-year. Africa's largest country-level decline in production was recorded in **Mali**, as output from a number of the country's more established mines fell year-on-year. In **Mauritania** gold production was impacted by lower grades and plant downtime at Guelb Moghrein.

The CIS recorded the second largest regional gain, with marked increases from both Russia and Kazakhstan. **Russian** mine production rose by 9%, to 84 tonnes, as the ramp-up of Blagodatnoye and Malomir added four tonnes. **Kazakhstan's** gold production jumped by 40%, to 19 tonnes, as output from Altyntau Kokshetau (formerly Vasilkovskoye) ramped up.

Mine supply from Latin America grew by 3%, in spite of Peru registering the largest country-level decline globally. **Peruvian** output dropped by nearly six tonnes, on the back of major falls in production at Yanacocha and Lagunas Norte. However, counteracting this were sizable gains in Mexico and Chile, which added nine tonnes collectively.

Asian production rose by less than 1%, as declines in Indonesia and Japan partially counteracted continued gains in China and Turkey. **Indonesian** production fell by 4%, to 59 tonnes, as a two tonne addition at the world's largest gold-producing operation, Grasberg, was wiped out by a six tonne decline at Batu Hijau, where production was impacted by processing a higher proportion of low-grade stockpiled ore. In **Turkey**, mine supply rose by 15% as Çöpler added over two tonnes of new output, having declared commercial production in April this year.

Output in Europe fell by 4%, the only region globally from which production fell.

Looking to the second half of 2011, our forecast is for mine supply to continue its climb, boosted by further gains in China, Canada and Russia. We expect Indonesia to record the only substantial year-on-year decline in the second half and full-year. Further out, Thomson Reuters GFMS expects mine production to continue rising for the next two years at least, supported by a strong gold prices and buoyant mining equity markets.

Oliver Heathman

Oliver joined GFMS (now Thomson Reuters GFMS) in 2009, undertaking precious metals research into global mine production, producer costs and hedging. In addition, he is major contributor to the company's World Gold Analyst publication, a comprehensive quarterly review of the world's main gold and silver producers. Formerly he worked as a Geotechnical Engineer, and holds a BSc in Geology and an MSc in Mining Geology from Camborne School of Mines.

Matthew Piggott

Matthew joined Thomson Reuters GFMS in 2007, and undertakes research on global mine production and the cost of production, primarily for precious metals, covering the company's annual Surveys, forecasting and bespoke consulting work. In addition, since 2009 he has been responsible for the company's research into producer hedging. Matthew holds an MSci (hons.) degree in Geology from University College London.

The Alchemist is published quarterly by the LBMA.
For further information please contact Ruth Crowell,
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The *Alchemist* is designed by Jon River.

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as **'Good Delivery'** by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry,
PAMP is further honored as one of only five **'Good Delivery' Referees** of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for **a variety of sophisticated precious metals products**,
such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY
REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPM
GOOD DELIVERY REFEREE

LBMA

Alchemist

The London Bullion Market Association ISSUE 65 January 2012

In this issue

Pictured above are a selection of Russian gold coins including 10-rouble coins, which are featured in the article by Valery Lebedev on page 10, in which he investigates the history, and the future, of investment coins in Russia.

We've earned our place at the table

The Toronto-Dominion Bank (TD) is now a full member of the LBMA and the LPPM

TD is proud to take its place beside other industry leaders as a full member of The London Bullion Market Association and The London Platinum and Palladium Market. We also hold the distinction of being the only full service publicly traded bank in the OTC precious metals markets with an Aaa rating from Moody's.

As TD enters the second year of global precious metal trading and sales, our clients can be assured they will continue to benefit from the exceptional service, execution, and risk management expertise TD is recognized for.

As part of TD, TD Securities and TD's Global Precious Metals Group provide a broad range of products and services to our commodities clients to help achieve their financial goals.

C$7,500,000,000
Sale of
EQUINOX MINERALS LIMITED
to
BARRICK
Joint Financial Advisor to Equinox Minerals Ltd.
2011

C$600,000,000
Canadian Gold Reserves
Réserve d'or canadienne
Initial Public Offering of the Royal Canadian Mint's Exchange Traded Receipts
Joint Bookrunner
2011

US$1,200,000,000
AEM
Agnico-Eagle Mines Ltd.
Revolving Facility
Co-Lead Arranger & Syndication Agent
2011

Contact one of our global offices:

New York
T: +1 212 827 7866
gpm.ny@tdsecurities.com

London, UK
T: +44 (0) 20 7997 1932
gpm.london@tdsecurities.com

Singapore
T: +65 6500 8022
gpm.singapore@tdsecurities.com

TD

All trade-marks are the property of their respective owners. ® /The TD logo and other trade-marks are the property of The Toronto-Dominion Bank or a wholly-owned subsidiary, in Canada and/or other countries.

The Early Development of the London Gold Fixing

By Dr Rachel Harvey, Postdoctoral Research Scholar, Columbia University

The London Gold Fixing is the responsibility of The London Gold Market Fixing Limited.

For further information, visit www.goldfixing.com

The Gold Fixing Room, N. M. Rothschild & Sons, New Court, St. Swithin's Lane. Reproduced with the permission of The Rothschild Archive.

Introduction

The historic trading rituals of the London Gold Fixing provided it with an immutable quality. It appeared, in many ways, to be frozen in time. Recent analysis of documentary evidence reveals, however, that the practices of the Gold Fixing were far from static. Rather than developing over a relatively short period, they actually emerged over several decades, with the Gold Fixing only achieving its most recognisable form near the end of the 1930s.

There is of course a well-known story about the development of the London Gold Fixing[1]. Tim Green, in his masterful unpublished history of Mocatta & Goldsmid (1979), discovered evidence that the Gold Fixing existed prior to the First World War. It was an informal gathering of the four bullion brokers - Mocatta & Goldsmid, Pixley & Abell, Sharps & Wilkins, and Samuel Montagu & Co. - at which a single price of gold was established that cleared the market. The First World War halted the informal fixing, but after the cessation of hostilities, a more formal process was established on 12 September, 1919. At 11:00 that morning, N.M. Rothschild & Sons determined the best sterling price for gold. The merchant bank, which was not involved in the market making prior to 1914, was the main agent for the South African mining companies and had been invited by the Bank of England to act as the market's chairman. Once the price was determined by N.M. Rothschild & Sons, the four bullion brokers were granted the opportunity to bid on the gold. Just as in the period prior to 1914, a single price was established at which the market cleared.

Once the price was determined by N.M. Rothschild & Sons, the four bullion brokers were granted the opportunity to bid on the gold. Just as in the period prior to 1914, a single price was established at which the market cleared.

At first, market dealings were conducted over the telephone. Within a short period of time, it was determined that meeting in person would be far more practical. The bullion firms then began to conduct their negotiations at the offices of N.M. Rothschild & Sons. Initially, no outside communication was permitted during the proceedings and Johnson Matthey & Co. was not involved. Over time, however, the refiner was invited to join the Gold Fixing and

1. The more well-known story of the Gold Fixing was taken from archival documents including, RAL, XI/35/64, Memorandum: *Gold Market, October 1937, the writings of Timothy Green on the gold market* (1968, 1979, 1981).

Excerpt from *"The World's Gold Market"* Wall Street Journal, April 20, 1907

If a stranger was to stop an average Londoner . . . to ask him the way to 'the gold market,' he would be answered with a stare of amazement. Even among the city numbers there are few who have actually seen the mechanism they admire so much. It is probably a mystery to them as to the ordinary public how gold is handled in London ...

... At a place which, for obvious reasons, cannot be divulged, the bullion brokers meet punctually at a quarter to two o'clock. Some, or possibly all, of them have certain amounts of the precious metal to dispose of. Others may have buying orders, and there is nothing to prevent a broker acting for both sellers and buyers...

...By way of concrete example we may take their meeting of one Monday last month. It was an unusually interesting day, and very significant of the existing situation.

The demand for gold was keener than ever, and there were a good many small buyers in the market. The action of the Bank of England was uncertain, and still more so was that of the New York banks. Though the price was fixed at 77s. 9⅜d., it was a question if the Americans might not go a fraction better. The Bank of England intimated through its broker that it would like to have all the gold available and would give 77s. 9⅜d. for it. There is at present a tacit understanding that the bank is to have preference when it is willing to pay the best bid by any other buyer. In one corner of the city there is thus a faint survival of nobless oblige. The bank exercised its call on Monday's gold.

From the board room the bullion brokers rushed to their offices. There telephones and telegraphs were set in motion to report results to clients in various parts of the world. Cable messengers reached New York almost as soon as an office in Throgmorton Street[2] *could be called up. Answering rings were soon heard, most of them inquiries from buyers who had been impatiently waiting the result of the official board.*

telephones were installed, allowing the brokers to maintain communication with their respective offices. The term 'flag up' was adopted at some unknown time to signal the desire to pause the dealing process, with the physical Union Jacks flags being added at a later point in time (a gift to the market from George Matthey, a descendent of one of the founders of Johnson Matthey & Co).

As outlined above, the history of the Gold Fixing was an informal affair prior to 1914 and became increasingly formalised after the First World War in what seemed to be a relatively short period of time. Recently discovered archival evidence suggests an alternative scenario. A *Wall Street Journal* article (see panel opposite) from 1907 contains evidence that the Gold Fixing was a far more formal affair than originally believed. The meeting was held at 13:45 - the start time of the Silver Fixing. Based on this information, it is highly likely that the Gold Fixing was held at Sharps & Wilkins and used a format similar, if not exactly the same, as the Silver Fixing. It was thus a well-established routine by 1907.

Based on this new evidence, the 'start' of the Gold Fixing on 12 September, 1919 instead represented a resurrection and reconfiguration of a formalised pricing ritual. While N.M. Rothschild & Sons became a participant and the pricing ritual was no longer held at the offices of Sharps & Wilkins, the Gold Fixing, in many ways, looked much the same as it did prior to the First World War. Such continuity conceals how the preservation of the structure and pricing method was far from guaranteed.

Discussions after the First World War about what form the London gold market should take were intimately connected to the Bank of England's (the Bank) desire to restore the international importance of sterling and the City of London. A key component of this strategy was to ensure that the London gold market retained its pre-1914 pre-eminence. Thus the Bank determined that South Africa's gold must be marketed in London. To accomplish this goal, the Bank negotiated agreements with the South African mining companies to ship their gold to London. After its arrival, the agent for the mining companies, N.M. Rothschild & Sons, would find buyers for the precious metal (Ally 1994).

Discussions after the First World War about what form the London gold market should take were intimately connected to the Bank of England's (the Bank) desire to restore the international importance of sterling and the City of London.

The next challenge was to decide how the gold should be marketed. In their conversations with the Bank about the disposal of South African gold, N.M. Rothschild & Sons appeared to favour selling the gold directly to end users themselves - whether they were located in India, New York or some other location[3]. By selling the gold to the brokers in London, the merchant bank argued, the South Africans would receive less profit. In addition, N.M. Rothschild & Sons favoured utilising bilateral contracts. If two buyers each wanted a portion of the gold on offer at two different prices, the merchant bank would accept both bids[4].

The Bank favoured, however, an alternative mechanism. The position of the central bank was that the gold should be disposed of in London through intermediaries in the market - the bullion brokers.

Not only should the gold continue to arrive in London, but it should be marketed there. In addition, the practice of establishing a single price should continue. The Governor of the Bank at the time, Sir Brien Cokayne, thus desired, "an open market for gold in which not only every seller would know that he would receive the highest price the world could pay but also every buyer would know that he would get his gold as cheaply as the world could supply it"[5].

As evident by the first fixing on that Friday morning in September 1919, the wishes of the Bank were enacted. In pursuit of its goals to re-establish London as an international financial centre and clearing house, the Bank ensured that the London Gold Fixing was to be resurrected and in a manner consistent with its pre-1914 form. Yet the pricing ritual, as noted above, was different. Besides no longer being held at

2. Research also revealed that the Silver Fixing appeared to start in the 1870s.
3. RAL, XI/111/153, *Proposed Reduction in Refining Charge: Interview with the Bank of England*, 13 June, 1919.
4. BEA, C40/360/90, Sir Brien Cokayne's notes on a meeting with Anthony G. de Rothschild, 6 August, 1919.
5. BEA, C40/360/90, Sir Brien Cokayne's notes on a meeting with Anthony G. de Rothschild, 6 August, 1919.

Your global partner for precious metals

Active in the physical and non-physical markets for almost a century, our award winning[1] dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

- Gold, silver, platinum and palladium
- 24h global service from hubs in Switzerland, the US, Singapore and the UK
- Physical precious metals custody in our Swiss vaults
- Coins: trading, handling and storage
- Structured products and tailor-made hedging solutions
- Full range of OTC derivatives
- Gold, Silver, Platinum, Palladium ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335

Stamford: +1-203-719 1178
Singapore:* +65-6495 3757
London:* +44-207-567 6752

*non physical only

Intended for investment professionals only

We will not rest

UBS

www.ubs.com/preciousmetals

[1] Risk No.1 Dealer in Precious Metals – Gold Spot and Options, Silver Spot and Forwards in Risk & Energy Risk magazines' Commodity Rankings (2011)
No.1 for Precious Metals in Risk magazines' annual survey: 1st overall and 1st in six categories (2009) © UBS 2011. All rights reserved. 04441 Alch.

Sharps & Wilkins, not all the brokers were regular participants. It appeared that for the first few years, only Mocatta & Goldsmid was present at each fixing. By 1925, all the bullion brokers were at each meeting and, in 1926, Johnson & Matthey & Co. was invited to join the process.

The other elements traditionally associated with the Gold Fixing developed slowly. Phones appeared to only be introduced a few years after the 12 September, 1919 fixing - perhaps as late as 1923. Initially, only one phone was available for the brokers who had to "queue up in order to use it"[6]. In the chaos created in international monetary markets when sterling was decoupled from gold in September 1931, it appears that more phones were added. At this time, each participant was provided with their own line (the direct line between N.M. Rothschild & Sons and the Bank was only installed some time in 1936). Around 1931, the Gold Fixing also moved to its permanent home in the offices of N.M. Rothschild & Sons - the conference room initially known as 'Mr. Anthony's Room'. Prior to this moment, the pricing ritual took place in two other rooms on the same premises.

In the chaos created in international monetary markets when sterling was decoupled from gold in September 1931, it appears that more phones were added.

By the early 1930s, most of the elements of the Gold Fixing were in place, with the exception of one: the small Union Jack flags. Prior to their introduction, as noted earlier, the term 'flag up' was used. Unfortunately, the historical record is silent on when the flags became part of the pricing ritual. Some clues do suggest, however, that they were added in the 1930s and most likely after 1937. Besides descriptions of the Gold Fixing prior to 1937 containing no mention of the flags, the individual responsible for their introduction, George Matthey, only became actively involved in the Gold Fixing in 1939 (McDonald and Smyrk 1984). Given this latter piece of information, the flags might have only been introduced to the market as late as 1939 - perhaps as a patriotic gesture in the shadow of the oncoming war.

Thus by the start of the Second World War, the rituals synonymous with the Gold Fixing throughout the 20th century, were established. Attesting to their new permanence was that when the market resumed after an almost 15-year hiatus in 1954, the trading practices were reinstated. As noted above, the immutable hue surrounding the Gold Fixing's routines is, however, a relatively recent condition. The market's trading rituals slowly developed over several decades. Thus, it is now evident that the Gold Fixing was characterised by far more change than its traditional image might suggest.

References

Ally, Russell. 1994. *Gold & Empire: The Bank of England and South Africa's Gold Producers, 1886-1926.* Johannesburg: Witwatersrand University Press.

Green, Timothy. 1968. *The World of Gold.* New York: Walker and Company.

1979. *Precious Heritage: The three hundred years of Mocatta & Goldsmid.* Dulwich.

1981. *The New World of Gold: the Inside Story of the Mines, the Markets, the Politics, the Investors.* New York: Walker.

McDonald, Donald and Philip G. Smyrk. 1984. *The History of Johnson Matthey & Co. Limited: The Years of World War Two, 1939-1945.* London: Johnson Matthey & Co. Ltd.

Dr Rachel Harvey
Postdoctoral Research Scholar
Columbia University

Dr. Rachel Harvey is a Postdoctoral Research Scholar at Columbia University. Her research focuses on the history of global financial markets and the centrality of socio-cultural processes in their emergence and functioning. She is currently completing a book manuscript, The Golden Standard: the Moral Foundations of a Global Financial Market, which explores the globalisation of the London Gold Fixing in the latter half of the 20th century. Dr. Harvey is a Visiting Research Fellow at the Centre on Global Legal Transformation, Columbia University; a Researcher with the Global Finance and Law Initiative; and a Fellow with the Framing the Global Research and Publication Project, Indiana University.

If you wish to use the gold or silver fixing prices for commercial purposes, including to incorporate them into commercial products which you intend to market, sell or otherwise provide to third parties, you must pay the required licence fee and obtain a licence from The London Gold Market Fixing Limited and/or The London Silver Market Fixing Limited as appropriate.

Visit www.goldfixing.com and www.silverfixing.com for full details.

6. BEA, C43/661/172, Letter to J.B. de K Wilmot, SARB from L.T.G. Preston, Bank of England, 10 August, 1955.

A Day in the Life of an Operations Manager

By Sunny Field, Operations Manager, Precious Metals Department, Mitsubishi Corporation International (Europe) Plc

6:00 AM

Another dark morning in Kent. I live a two-hour commute from the office, so although I do not actually get into the office until 8am, I have plenty of time on the train to start the day's work – oh, the joys of the BlackBerry. Working for a Japanese trading company means that my day starts early. Tokyo is eight hours ahead in summer and nine hours in winter, so there is little overlap in business hours with London.

I start the day by reading through the emails sent overnight by our New York and Tokyo offices, and I answer any queries that I can. Tokyo advises that one of its Asian customers has been unable to make a substantial Yen payment due to a power cut following a typhoon in Hong Kong. I notify our Treasury department by email as they are responsible for the funding. I hope this will not affect other outgoing payments, so I follow up with a phone call to make sure.

That done, and assuming there are no other urgent issues requiring my attention, I read the business and market reports sent by the other offices, and scan the general news on the market. That gold is worth more than platinum still takes a bit of getting used to!

8:00 AM

I arrive at the office and discuss any problems or outstanding issues with the back office and ensure that any requiring attention are resolved as soon as possible. The back office may not be the most glamorous of departments in precious metals trading but it is the backbone of any financial institution. It performs an important function, including settling confirmations, regulatory compliance and updating IT systems that handle position-keeping, clearance, trade settlement, trade maintenance and risk management.

Any problems need to be treated urgently to ensure that the back-office operations run as smoothly as possible throughout the day. Unfortunately, I've just been informed that our metal account doesn't reconcile because a customer hasn't delivered some metal to us and therefore our account is overdrawn. The back office is investigating and will need to ensure that the discrepancy is resolved before releasing today's instructions to our metal clearer and confirming that we can reconcile our accounts.

With the recent introduction to loco London clearing of platinum and palladium, I have been given the added responsibility of ensuring that both Mitsubishi International Corporation (MIC) and Mitsubishi Corporation Tokyo (MCTOK) are prepared and set up to trade loco London for both metals. I discuss this on the telephone with our London clearer and the MIC and MCTOK offices.

9:00 AM

Now down to the nitty-gritty. I check the profit/loss, credit reports and metal balances. I discuss the metal positions with our front office and they tell me about trades that have been arranged for the next two days. The back office confirms these with the customer and arranges the settlements accordingly.

9:30 AM

Time for a quick morning meeting with the dealers to discuss new business projects and any issues with current business. A customer has a specific requirement outside the usual trading arrangements and we need to discuss this with our legal and tax specialists. Although there are no insurmountable legal issues that have been identified, the delivery location is causing a tax problem. Our accounts department is looking into this matter and will report back later in the week.

I also have some discussions about some potential new customers. I am responsible for managing the new European clients and need to ensure that all the relevant documentation and *Know Your Customer* checks have been carried out before handing over to MIC for final validation and approval.

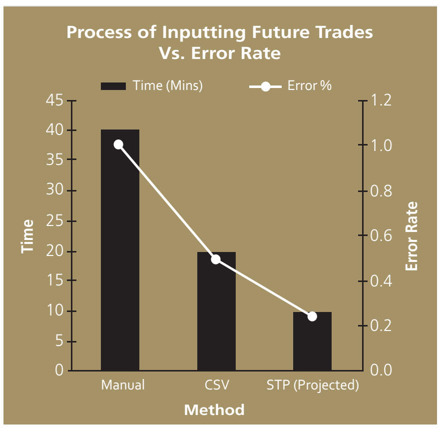
10:30 AM

It's time to get a cup of tea to give me the strength to think about IT systems, never the simplest or most enjoyable of tasks. IT has transformed operations in our business and I find it hard to imagine how we could operate without modern technology including the web, emails, trading systems, etc. But it is also a source of technical problems too. Maybe I'll grab a strong cup of coffee as well!

At one stage, futures that were traded electronically were entered manually into the system and then manually reconciled. The process was even more time-consuming and inefficient than it sounds! However, I've managed recently to automate this function, which has improved efficiency and accuracy, as well as reducing risk and the amount of manual intervention in the back-office processes. Now I'm looking into further improvements such as Straight Through Processing (STP). This will enable our trading software to interface directly with our trading system and significantly reduce the amount of manual intervention required. If I am not careful, I will end up being replaced by a robot.

The IT project I'm managing is evaluating the futures trading software. The task is to choose the system that is most user-friendly for the front office whilst improving the data reconciliations, live feeds, positions and accuracy for back office functions. More than anything, it needs to be cost-effective too! The aim is to improve the efficiency of the back office by automating several different functions and reducing the amount of manual intervention by delivering STP wherever possible.

By streamlining and improving our procedures and processes, we hope to allow the front, middle and back offices to share the efficient trade validation process in real time. Testing, trials and errors are time-consuming and frustrating.



The graph above illustrates that moving from manual processing to full STP can deliver savings in time as well as a reduction in the rate of error.

12.00 PM

All payments/settlements are submitted to me for approval and then passed to our accounts department for payment.

12.30 PM

Time for my weekly Japanese lesson. I've been having lessons for the past two years and it's allowed me to understand how to confirm numbers orally over the phone both with the Tokyo office and Japanese customers. It has also helped me to introduce myself and order food and drink. Fluency in the language, however, is some way off and may take decades.

1:30 PM Lunch

Good old chicken Katsu curry at my desk as the phones, emails and conversations reach fever point at the opening of the New York market. My attention is then drawn to dealing with outstanding queries and approving last-minute same-day trades.

2:30 PM Audit time

With tighter compliance and regulations in place, Mitsubishi has audit testing every six months. I need to check through each back-office process and try (so far as is reasonable) to ensure that our key controls deliver minimum risk exposure and maximum protection. I'm responsible for compliance-related issues and identifying new control procedures relating to any new processes. This is time-consuming, but clearly necessary, and helps ensure that we are not exposed to any risks.

3:00 PM

I have to interview someone for the position of metals administrator. I'm looking for a person with talent and potential as well as someone who will go the extra mile to deliver results. The technical requirements are analytical skills, attention to detail and innovative IT skills. To qualify for an interview, each candidate has to pass a maths test I prepared, with a pass mark of 70% or more.

3:45 PM

There's a problem with a metal delivery. The amounts don't agree and the account is short. In order to reconcile the accounts, we arrange for the front office to make a same-day trade and the transaction is settled before the close of day.

5:00 PM

We start to hand over to MIC in New York. I am responsible for ensuring that all positions and the P&L are correctly reported to MIC and that all data has been checked and agreed.

5:30 PM

Another day has finished and I start the journey home. But not, of course, without my trusty BlackBerry! As we trade on behalf of the New York office, we're always on call to deal with any problems or questions that may arise throughout the evening.

Sunny Field
Operations Manager, Precious Metals Department
Mitsubishi Corporation International (Europe) Plc

A graduate of the University of Birmingham (Business Management), Sunny joined Mitsubishi Corporation in 2005 as a Back Office Contracts administrator. Having gained wide experience in the functions of the Back-Office, in 2006 Sunny moved into Front Office Trade Support, which provided more direct exposure to the markets. In 2011 she moved into her current role as Operations Manager for the Precious Metals department.

Sunny is responsible for ensuring accuracy and efficiency in day-to-day operations, developing innovative new systems, implementing the strategic objectives of the Precious Metals Department and liaising with Mitsubishi offices in Tokyo & New York.


The conference by the industry for the industry
LBMA Precious Metals Conference 2012
In Association with the LPPM
11-13 November
Grand Hyatt Hotel
Hong Kong
Why You Should Attend This Conference
Senior representatives of all sectors of the precious metals markets will be in attendance at the LBMA (LPPM) Precious Metals Conference, the premier event in the industry calendar. Now in its 13th year, the LBMA Conference adds insight into the vital issues affecting the precious metals markets.
Central Bankers… Dealers… Producers… Fabricators… Refiners… Brokers… Analysts… Marketers. There's a place for all market players at the LBMA (LPPM) Conference. Make sure to reserve yours.
The London Bullion Market Association
13/14 Basinghall Street
London EC2V 5BQ
Tel: +44 20 7796 3067
www.lbma.org.uk
conference@lbma.org.uk
There's a place for all market players at the LBMA (LPPM) Conference – Registration opens in July

Russia's Investment Coins

- *Past, Present and Possible Future Outlook*

By Valery Lebedev, Director, Precious Metals Department, MDM Bank

Modern Russian investment coins began to be produced in the early 1970s. Owing to a severe domestic food shortage, the authorities in the former USSR decided to import grain from the USA, Canada and Argentina in exchange for gold.

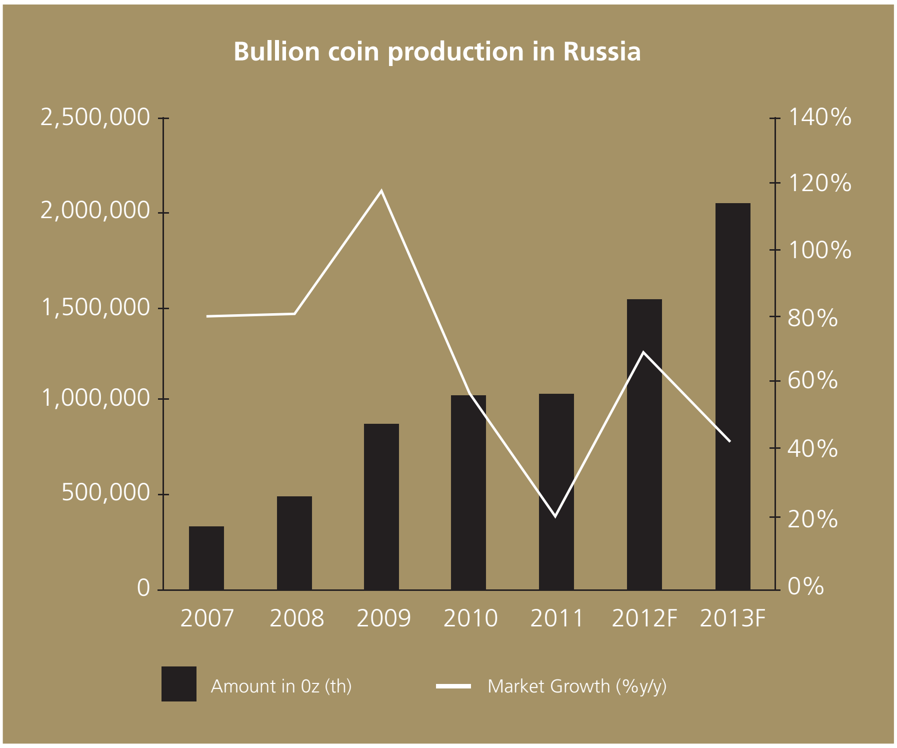
Those countries interested in securing long-term contracts with the USSR suggested that the Soviet government pay some of the contracts using investment coins. These coins typically trade at a premium of between 5% to 10%. In 1975, the Central Bank of the USSR issued the first consignment of 250,000 gold 10-rouble coins (Au-900, 7.742g). Between 1976 and 1982, one million coins were minted annually. In 1980, a further 100,000 gold 10-rouble coins of 'proof' quality were issued to mark the XXII summer Olympic Games in Moscow. In addition to payments under foreign trade contracts, 10-rouble coins were sold to foreign tourists in exchange for foreign currency. These 10-rouble coins were not in circulation within the USSR.

Historical note: *The 10-rouble coins minted between 1975 and 1982 were a repeat minting of 10-rouble coins minted in 1923, which were also produced for sale to foreign countries. However, in 1925, western European states introduced a 'gold blockade' against the USSR by excluding 'Seeder' 10-rouble coins from being used as a means of payment. To circumvent the blockade, Russia used the gold intended for minting the 10-rouble coins in 1925 and 1926 to mint the pre-revolutionary 10-rouble gold coins of Tsar Nikolai's reign (presumably by using the impresses of 1911), which were not subject to restrictions of the 'gold blockade'. In total, more than 2 million pre-revolutionary pieces were minted.*

In 1924, a decision was taken to issue coins with a new design, with the State Emblem of the Russian Soviet Federated Socialist Republic (RSFSR) being replaced with the State Emblem of the USSR. However, since only proof copies were ever issued in 1925, these coins are now extremely rare. At present, only a handful of 10-rouble coins dated 1925 are known to exist, two of which are kept in the State Museum of Fine Arts, named after A. Pushkin, and another three are kept in the GOZNAK museum. Minted proof copies of the 10-rouble coin were also made in copper and only one copper 10-rouble coin is known to exist. This was sold in April 2008 at the 'Collectors' Russian Coins and Medals' auction in Moscow for a record price of RUB 5 million (the opening price was RUB 1 million).

Following the break-up of the USSR, the 10-rouble coins issued between 1975 and 1982 continued to be considered legal tender. After the denomination in 1998, the 1999 10-rouble coins lost their currency status within the Russian Federation. However, in 2001, the Board of Directors of the Central Bank of the Russian Federation decided that 10-rouble coins issued between 1975 and 1982 should be returned to legal tender status, and this gave rise to the investment coin market in Russia.

By 2005, when stocks of 10-rouble coins in the Central Bank of Russia's vaults began to run low, the Central Bank of Russia's Board of Directors took the decision to issue a new type of investment coin for the first time since 2006 – the St. George the Victory-bearer (Au-999, 7.78g), which was issued for a period of five years between 2006 and 2010, during which 3,420,000 gold coins were produced.

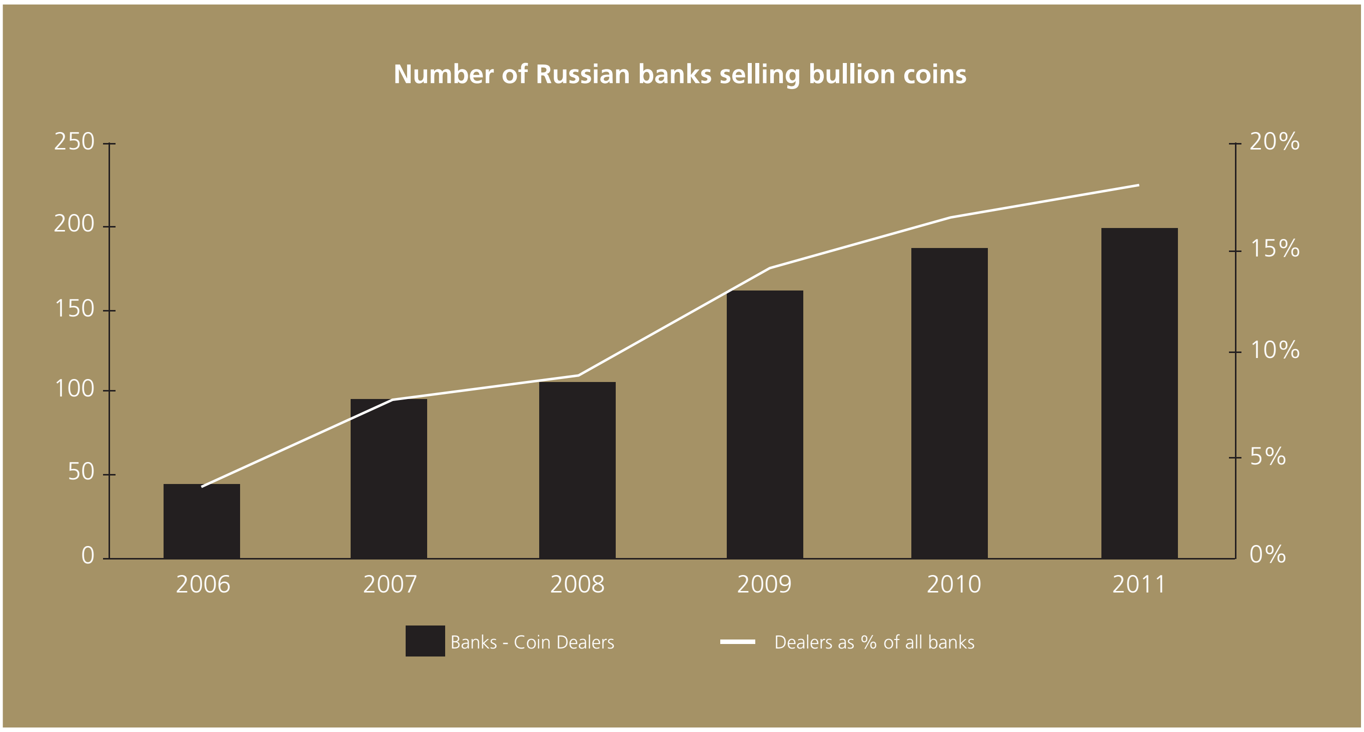


This period coincided with the start of the world financial crisis in 2008-2009. In 2009, the Central Bank of Russia promptly reacted to higher demand for coins from investors by increasing the production of St. George the Victory-bearer by twofold. In parallel with this, the Central Bank of Russia also issued St. George the Victory-bearer silver coins (Ag-925, 31.10g.). Between 2009 and 2010, 780,000 pieces were minted. This was a relatively small quantity, reflecting the fact that private investors in Russia prefer to buy gold coins, with silver coins typically being bought by individuals on low incomes.

Higher demand from private investors for Russian investment coins was also met by Russian banks selling investment coins. Between 2006 and 2011, the number of such banks increased from 45 to 202, during which time their share of the Russian banking market grew from 3% to 18%. During this period, the Russian market for investment coins developed into a two-tier market structure, made up of the primary and secondary markets.

The primary market is largely made up of the Central Bank of Russia and commercial banks. The GOZNAK Federal State Unitary Enterprise joined these in April 2011 (the Moscow Mint and Saint-Petersburg Mint being part of GOZNAK FSUE's structure). The Central Bank of Russia sells the commercial banks large quantities of issued investment coins at an ex-factory price, which is based on the previous day's pm London gold fixing price divided by 31.1035 and multiplied by the current official rouble-dollar rate of the Central Bank of Russia. A premium of between 5% and 10% is then added to provide the final price. Commercial banks sell investment coins to private investors adding 0.3% to 10% to the ex-factory price quoted by the Central Bank of Russia.

The secondary market is represented by commercial banks purchasing coins from either private investors or 'numismatic' companies. Russian tax legislation requires private investors who have owned investment coins for less than three years to pay 13% tax on the proceeds of the sales. In general, the purchase and selling prices are determined by the laws of demand and supply in the market and can fluctuate widely. Although data on the size of the market is not available, in my opinion, the share of the market is split as follows: 75% private individuals,



15% banks and 10% numismatic companies. Although the presence of the commercial banks in the secondary market is insignificant, banks' quotes for sale and purchase of coins are used as an indicative price for the rest of the market.

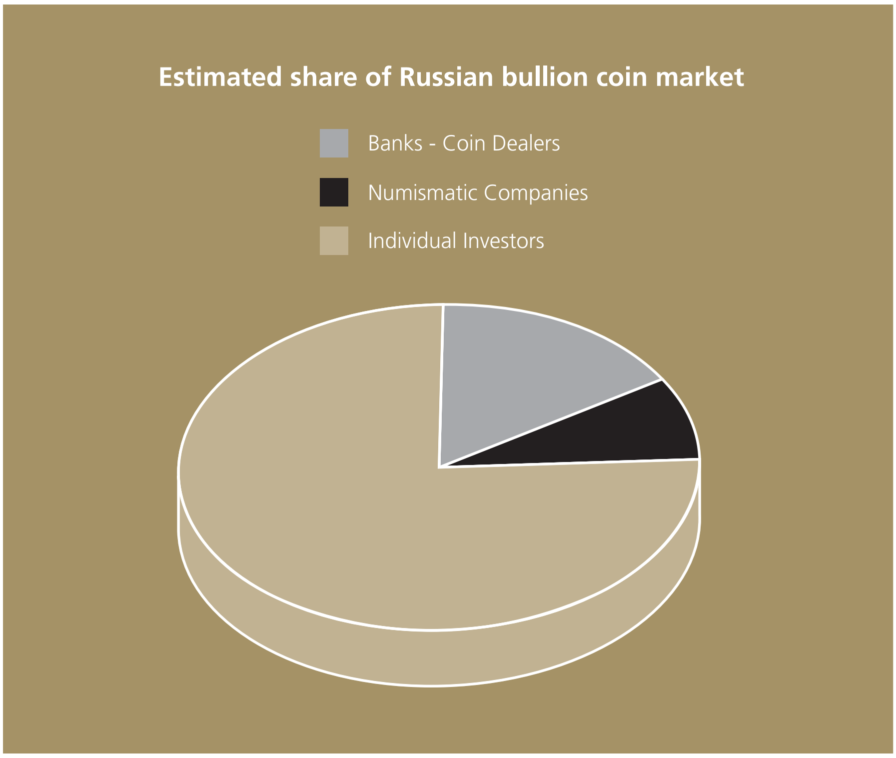
The market for investment coins increased from RUB 4 billion to RUB 52 billion between 2006 and 2011. What other market could boast such an impressive rate of growth? We are anticipating even more impressive market growth over the next two years and we are forecasting that market volume will more than double to RUB 126 billion by the end of 2013. We believe that growth will be influenced by the Central Bank of Russia launching the Olympic monetary programme, under which it is planning to issue gold investment coins with a total weight of 1.25 million troy oz. However, in order for this to happen, we believe that the Central Bank of Russia will need to repudiate its agreement with Sberbank dated December 2, 2010. Pursuant to that agreement, the Central Bank of Russia granted to Sberbank the exclusive right to sell within Russia commemorative and investment coins under the Sochi 2014 programme. But we should remember that the more sellers there are in the market, the more opportunities investors have for buying coins at lower prices, as happened during the St. George the Victory-bearer monetary programme.

In view of the evolving circumstances, the prospects for the Russian investment coin market are uncertain, though we can envisage the following scenario. Sberbank establishes price terms for transactions with Russian investment coins for commercial banks, numismatic companies and private investors. As a result of this, commercial banks will either cease transactions with investment coins or start looking for alternative sources to purchase coins, for example by purchasing coins from abroad. Under Russian law, the purchase of coins containing precious metals, which are used as legal tender by Russia or a foreign state (a group of states) are not subject to 18% VAT. Kazakh investment coins 'The Silk Road' and 'Golden Leopard' will become the most easily obtainable coins in the future because there isn't a customs border between Russia and Kazakhstan. The import of foreign investment coins by Russian commercial banks is a further potential source of supply. However, currently, the costs associated with doing so are prohibitive, because Russian banks have to pay duty of 20% of the coins' contract value as well as import VAT of 18% of the contract value. It therefore makes little economic sense for the banks to import coins in this way. The only real solution would be for the Russian Government to significantly reduce these rates. But, as people say in Russia, hope springs eternal. The third way for foreign investment coins to enter the Russian market is via importation by private individuals. Private individuals are not subject to duty on import of precious metal coins up to the value of $10,000. But where can the necessary number of people be found? I think that if there is a stable demand for coins, such people will definitely appear.

But I still think that the Central Bank of Russia will find a solution that will be satisfactory for all participants of the Russian investment coin market, for example, by launching another monetary programme alongside the Olympic monetary programme.

Valery Lebedev
Director, Precious Metals Department
MDM Bank

In 1989 Valery graduated from the Moscow Institute of Cooperation. He received his second degree in Financial Management from the Moscow School of Economics in 1998, and has worked in banking ever since. In 2006 he became Head of the Precious Metals Department in the Bank of Project Finance and is now currently Director of the Precious Metals Department at MDM Bank. Valery is also a recognised expert in bullion coin.



METALOR WAFERS

Investment products from the oldest LBMA gold refiner in Switzerland

DataMatrix

Metalor uses the latest engraving technology to apply upon each wafer its serial number together with a DataMatrix code. Embedded within the DataMatrix is various information related to the fabrication (and origin) of the wafer and makes each piece unique.

Certificate

Metalor products are elaborated and manufactured in respect with the renowned Swiss Excellence. Fineness of gold is certified by official sworn assayers. Metalor's assay laboratory is ISO 17025 certified through STS – the Swiss Testing Service. Metalor has been an Official Referee of the London Bullion Market Association (LBMA) since 2003. Bullion products are accredited with LBMA, LPPM, TOCOM, COMEX, Shanghai, Dubai and other major markets. Metalor is also a supplier of gold standards to the ASTM International Organization.

> graffiti-communication.ch

Metalor Technologies SA
Avenue du Vignoble, CH-2009 Neuchâtel
Phone +41 (0)32 720 61 11
info@metalor.com, www.metalor.com

METALOR®

The Golden Revolution:

- Why a Gold Standard lies in our near future, and how we might get there

By John Butler, Chief Investment Officer, The Amphora Commodities Alpha Fund

Contrary to the conventional wisdom of the current economic mainstream that the gold standard is but a quaint historical anachronism, there has been an unceasing effort by prominent individuals in the US and also a handful of other countries to try and re-establish a gold standard ever since President Nixon abruptly ended gold convertibility in August 1971. The US came particularly close to returning to a gold standard in the 1980s. This was understandable following the disastrous stagflation of the 1970s and severe recession of the early 1980s, at that time the deepest since WWII. Indeed, Ronald Reagan campaigned on a platform that he would seriously study the possibility of returning to gold if elected president.

Once successfully elected, he remained true to his word and appointed a Gold Commission to explore both whether the US should and how it might reinstate a formal link between gold and the dollar. While the Commission's majority concluded that a return to gold was both unnecessary and impractical – Fed Chairman Paul Volcker had successfully stabilised the dollar and brought inflation down dramatically by 1982 – a minority found in favour of gold and published their own report, *The Case for Gold*, in 1982. Also around this time, in 1981, future Fed Chairman Alan Greenspan proposed the introduction of new US Treasury bonds backed by gold as a sensible way to nudge the US back toward an explicit gold link for the dollar at some point in future.

In the event, the once high-profile debate in the US about whether or not to return to gold eventually faded into relative obscurity. With brief exceptions, consumer price inflation trended lower in the 1980s and 1990s, restoring confidence in the fiat dollar. By the 2000s, economists were talking about the 'great moderation' in both inflation and the volatility of business cycles. The dollar had been generally strong versus other currencies for years. 'Maestro' Alan Greenspan and his colleagues at the Fed and their counterparts in many central banks elsewhere in the world were admired for their apparent achievements.

We now know, of course, that this was all a mirage. The business cycle has returned with a vengeance with by far the deepest global recession since WWII, and the global financial system has been teetering on the edge of collapse off and on for several years. While consumer price inflation might be low in the developed economies of Europe, North America and Japan, it has surged into the high single- or even double-digits in much of the developing world, including in China, India and Brazil, now amongst the largest economies in the world.

We now know, of course, that this was all a mirage. The business cycle has returned with a vengeance with by far the deepest global recession since WWII, and the global financial system has been teetering on the edge of collapse off and on for several years.

The economic mainstream continues to struggle to understand just why they got it so wrong. They look for explanations in bank regulation and oversight, the growth of hedge funds and the so-called 'shadow banking system'. They wonder how the US housing market could have possibly crashed to an extent greater than occurred even in the Great Depression. Some look to global capital flows for an answer, for example China's exchange rate policy. Where the mainstream generally fails to look, however, is at current global monetary regime itself. Could it be that the fiat-dollar-centred global monetary system is inherently unstable? Is our predicament today possibly a long-term consequence of that fateful decision to 'close the gold window' in 1971?

I believe that it is. But what that implies, given the damage now done to the global financial system, is that there is no way to restore a sufficient degree of credibility and trust in the dollar, or other major currencies for that matter, without a return to some form of gold standard. This may seem a rather bold prediction, but it is not. The evidence has been accumulating for years and is now overwhelming.

Money can function as such only if there is sufficient trust in the monetary unit as a stable store of value. Lose this trust and that form of money will be abandoned, either suddenly in a crisis or gradually over time in favour of something else. History is replete with examples of 'Gresham's Law', that 'bad' money drives 'good' money out of circulation; that is, that when faith in the stability of a money is lost, it may still be used in everyday transactions – in particular, if it is the mandated legal tender – but not as a store of value. The 'good' money is therefore hoarded as the

superior store of value until such time as the 'bad' money finally collapses entirely and a return to 'good' money becomes possible. This monetary cycle, from good to bad to good again, has been a central feature of history.

History is replete with examples of 'Gresham's Law', that 'bad' money drives 'good' money out of circulation; that is, that when faith in the stability of a money is lost, it may still be used in everyday transactions – in particular, if it is the mandated legal tender – but not as a store of value.

In the present instance, we find a growing number of countries expressing concern about the stability of the dollar amid relentlessly expansionary US monetary policy, excessive dollar reserve accumulation and the associated surge in inflation, including China, India and Brazil. The 'Arab Spring' of 2011 originated in part from soaring food price inflation.

Concern is increasingly giving way to action. China has entered into bilateral currency swap arrangements with Russia, Brazil, Argentina, Japan, South Korea and Thailand as all these countries seek to reduce their dependence on the dollar as a transactional currency. As the dollar's role gradually declines, global monetary arrangements are likely to become increasingly multipolar, as there is no single currency that can realistically replace the dollar as the pre-eminent global monetary reserve. The euro area has major issues with unsustainable sovereign debt burdens and an undercapitalised financial system. Japan's economy is too small and too weak to provide a dollar substitute. And while China's economy has been growing rapidly, its financial system is not yet mature or robust enough to instil the necessary global confidence in the yuan as the dominant reserve currency. Yet growth in global trade continues apace, to the benefit of nearly all economies. A global currency facilitates global trade.

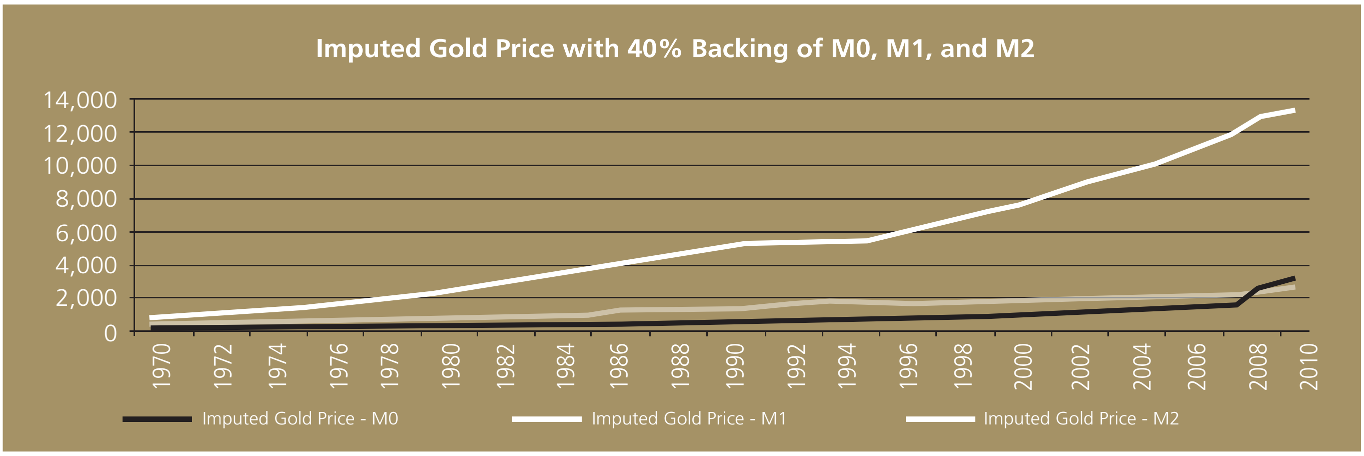
It was precisely a multipolar world amid rapidly growing international trade that ushered in the classical gold standard in the 1870s. Although gold had been in the ascendant in global monetary affairs for several years, growing German political and economic clout provided an important tipping point as Germany favoured gold for settlement of international balance of payments. While the Bank of England was the dominant central bank of its day, reflecting British economic power, it never sought to impose a gold standard on its trading partners. Rather, it accepted the gold standard as an international *fait accompli*.

The US Federal Reserve may find it plays a similar role in the near future. While it is certainly possible that, in order to restore confidence and trust in the dollar, the US relinks the dollar to gold on its own initiative, more likely is that another country, or group of countries, where economic power is in the ascendant, where there are large and growing current account surpluses, and where a meaningful amount of gold has already been accumulated, will be the first movers. All of the BRICs are potential candidates, as are certain oil-producing countries and, possibly, Germany and Japan.

While it is unclear just what kind of gold standard will prevail – history provides a range from which to choose, some of which worked better than others – the key point is that, whatever form of standard prevails, it must restore a sufficient degree of credibility and trust in global monetary affairs.

When presented with a *fait accompli*, the US will have little choice but to go along or find that the dollar not only loses reserve currency status entirely, but also is no longer accepted for international transactions. In the event, we believe a decision to accept the new global gold standard will be rather easy to reach.

While it is unclear just what kind of gold standard will prevail – history provides a range from which to choose, some of which worked better than others – the key point is that, whatever form of standard prevails, it must restore a sufficient degree of credibility and trust in global monetary affairs. That requires that, simultaneously alongside the return to gold, there must be a dramatic deleveraging of the undercapitalised financial system in the US, euro area, UK, Japan and also a handful of other countries. Fortunately, this is easily accomplished. All that is required is that the rate of gold convertibility is set at a gold price sufficiently high to imply that existing debt burdens, now clearly excessive, are reduced to levels that can be credibly serviced from existing levels of national income and, in the case of sovereign debts, from tax revenues.



However, given just how overleveraged financial systems are, and how large sovereign debt burdens are becoming amid unprecedented peacetime deficit spending, the rise in the price of gold will need to be an order of magnitude higher than it is today. That may surprise some, given that the price of gold has been rising for years. But what should really surprise us is that the growth of money and credit has been far greater. Simply taking the numbers as they are and allowing the gold price to rise sufficiently to compensate for decades of cumulative, excessive money and credit growth implies that a credible gold conversion price in dollars would be above $10,000. The credible, sustainable conversion prices in euros, yen, sterling and other developed world currencies would also lie far higher than where they are today.

From an investor's perspective, there are far greater implications of a return to a gold standard than merely the large rise in the gold price. The dynamics and determinants of interest and exchange rates, and risk premia for the entire range of assets, are going to change. For example, for those countries that return to gold, exchange rates will become essentially fixed. Interest rates, however, while nominally still under the control of central banks, will need to be set at market-determined levels, not below, or gold reserves will be depleted, eventually leading to a funding crisis. Risk premia for most assets will need to rise, primarily because, constrained by the gold standard, both monetary and fiscal authorities will have less flexibility to provide stimulus during economic downturns. As such, cyclical profit swings will tend to be larger, as will the number of bankruptcies.

There are other reasons not to fear gold but rather embrace it. A gold standard will reward savings, something that is sorely lacking in much of the developed world.

While a lack of policymaker flexibility and increased risk of corporate bankruptcy might concern some investors, consider that it was precisely an excess of policymaker flexibility – chronically loose monetary and fiscal policy – which got the developed world into its current predicament. This point is clear: poorly managed fiat currencies and the financial systems built upon them caused the global credit crisis, not gold. And what a world of 'too big to fail' needs are reforms that indeed allow large firms to go bankrupt from time to time, so that capitalism can in fact work as intended.

It is worth considering why bankruptcy has become such a bad word. While no investor wants to lose money on a bankrupt enterprise, when looking at a capitalist economy as a whole, bankruptcy is absolutely essential to economic progress. Josef Schumpeter's 'creative destruction', unlocking resources in unproductive enterprises and moving them to where they can be more efficiently employed, or mixed with new technologies or business techniques, is what capitalism is all about. Real long-term economic progress depends on it.

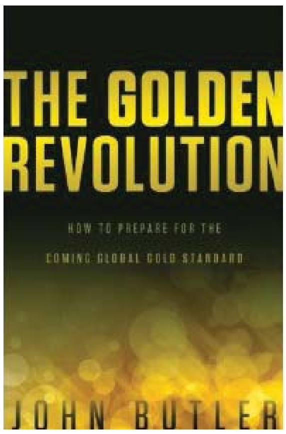
There are other reasons not to fear gold but rather embrace it. A gold standard will reward savings, something that is sorely lacking in much of the developed world. It will rationalise government finances, in particular by making it difficult if not impossible for countries to incur large debts and then try to pass these off on future generations, something of dubious morality. Absent easy money, it will force economies to become more flexible, and labour and capital to become more mobile. By implication, financial leverage will also be limited and 'too big to fail' will instead become 'too big to bail'. Indeed, absent easy money or bailouts, the financial sector will only grow to the extent that it actually serves the broader, productive economy. Huge numbers of engineers and other quants who went to the City looking for outsize bonuses will make their way back into real industries making real things, where they will be joined by fresh graduates and lay the groundwork for what is likely to be an era of great industrial innovation.

Investors should not fear the golden revolution. Rather, they should welcome it. After all, they don't call particularly prosperous historical episodes 'Golden Ages' for nothing.

John Butler
Chief Investment Officer
The Amphora Commodities Alpha Fund

Currently serving as the Chief Investment Officer of a commodities fund, John was previously Managing Director and Head of the Index Strategies Group at Deutsche Bank in London, where he was responsible for the development and marketing of proprietary, systematic quantitative strategies for global interest rate markets. Prior to joining DB in 2007, John was Managing Director and Head of European Interest Rate Strategy at Lehman Brothers in London, where he and his team were voted number one in the Institutional Investor research survey. In addition to other research, he publishes the Amphora Report newsletter which appears on several major financial websites.

A cum laude graduate of Occidental College in California, John holds a Masters Degree in International Finance and Economics from the Fletcher School of Law and Diplomacy, associated with Harvard and Tufts Universities.



Adapted from *The Golden Revolution by John Butler.* Copyright 2012 by John Butler. Published by John Wiley & Sons. Used with permission.

Building a Bibliography of Books on Gold and Silver

by Timothy Green, Author and Journalist

Introduction

The challenge in compiling a bibliography of useful books on gold and silver is not so much what to include, but what to leave out. In over 40 years of writing about both metals, I have collected or borrowed a myriad of titles on every aspect of the metals. Now, we have come up with a selection of 23 categories ranging from Assaying and Hallmarking, Coins, Investment, Metallurgy, Jewellery Design, Gold Rushes, Markets, Mining and Technology, to Silver in India, embracing more than 200 books.

Fortuitously, a panel of experts agreed to join us in the search, recommending books on their specialities. Notably, Professor Barry Eichengreen at the University of Berkeley, California, responded the same evening to an initial email from me on a Sunday lunchtime. He then contributed reviews on key books on the internal monetary system and central banks. Dr Chris Corti of COReGOLD Technology Consultancy provided indispensable recommendations on Science and Technology. From the London Market, Jonathan Spall of Barclays Capital chipped in with books on fast-moving modern markets, while Frederic Panizzutti from MKS Finance, Geneva, proposed essential books from a European perspective. On Silver, Mike DiRienzo, of the Silver Institute, pointed us to American publications. The LBMA is grateful for their guidance and that of others, including the Goldsmiths' Company and the London Library.

Fortuitously, a panel of experts agreed to join us in the search, recommending books on their specialities. Notably, Professor Barry Eichengreen at the University of Berkeley, California, responded the same evening to an initial email from me on a Sunday lunchtime.

For anyone seeking a broad briefing, we have selected 15 titles that rate as most 'useful'. The earliest is the *Report of the House of Commons Select Committee on the High Price of Bullion* in 1810, which gives the verbatim testimony of the Bank of England's Bullion Office and its broker, Mocatta & Goldsmid (now ScotiaMocatta), into how the market worked and the price was set. The most up-to-date book is Shayne McGuire's *Hard Money: Taking Gold to a Higher Investment Level in 2010* (precisely 200 years later).

The most practical introduction is *Gold* by Susan La Niece, a senior metallurgist in the British Museum's Department of Conservation and Scientific Research. She explains its brilliance, colour and unique properties of resisting corrosion and reflecting light. Dedicated chapters on gold's role as money, the art of the goldsmith (ancient and modern), jewellery and adornment are brought vividly to life in colour illustrations from the British Museum's own collections.

Switching to the technology of jewellery, nothing equals Oppi Untracht's *Jewelery: Concepts & Technology*. Untracht was a polymath on jewellery. This *magnum opus*, weighing three kilos, contains 900 colour and black and white

photographs, and as many drawings and diagrams. The book details every technique jewellery craftsmen the world over use now – or used in the past.

An equal tour de force is Christopher Corti and Richard Holliday's *Gold – Science and Applications*, published in 2010, covering developments in applications of gold, notably in catalysis and nanotechnology. Once Corti and Holliday set the scene in high technology, 16 further chapters are contributed by leading experts covering metal joining, jewellery production, electroplating, bonding wire, dentistry, thick film pastes and decorative gold materials.

Gold rushes and mining, of course, are an integral part of the story. On the rushes, my favourite is *The World Rushed In: The California Experience, An Eyewitness Account* by J. S. Holliday. It is a deeply moving account of the scramble to California in 1849, based on the diary of William Swain, who trekked across the plains and over mountains with 30,000 other prospectors to reach the diggings. On mining, the unique South African story is well told in Theodore Gregory's *Ernest Oppenheimer and the Economic Development of Southern Africa*. Oppenheimer's major achievement was backing the new gold fields in the Orange Free State in the late 1940s, which yielded four of the industry's seven 'super' mines over the next three decades. This is an essential book on the role of gold mining in South Africa.

In a blaze of gold, silver must not be forgotten – not least, *Silver, Its History and Romance* by Benjamin White, first published in 1917 and now printed on demand by Nabu Press. White worked in the London Silver Market for 40 years and, finding no one had written its history, decided to write it. This book is a unique source of data on the 18th and early 19th centuries. In the story of silver, India has played a key role, which is tackled by S. L. N. Simha and Janaki G. Krishnan in *The Saga of Silver*. More than 30 tables of statistics on production, prices in major markets, Indian imports and world consumption make this a basic source. And we must not forget Stephen Fay's *The Great Silver Bubble* on Bunker Hunt's attempt to corner the silver market in 1980.

Finally, among the books we chose for the bibliography, I would nominate the most original. Ernest Seyd's *Bullion and Foreign Exchanges*, published in 1868, is not just the best account of the London Market for gold and silver in the 18th century, but the most thorough at 700 pages of data. If you want to ship gold from London to Paris or California to London, or silver bars to Hamburg or silver dollars to Shanghai and bars to India, then this tells you how to pack it, what ship it goes on and how much it costs. This is a bullion dealer's handbook *par excellence*, now a collector's item, but you may find it on the AbeBooks website.

If you want to ship gold from London to Paris or California to London, or silver bars to Hamburg or silver dollars to Shanghai and bars to India, then this tells you how to pack it, what ship it goes on and how much it costs.

Good reading.

Timothy Green
Author and Journalist

Timothy Green has been writing about gold for over 40 years. His first book, The World of Gold, came out in 1968 and was revised several times. He also wrote The Gold Companion: The A-Z of Mining, Marketing, Trading and Technology for the Swiss company MKS Finance SA. His latest book, The Ages of Gold, on the 6,000 years' history of the metal, was published in 2007 by GFMS, the precious metals research company, for whom he was also a consultant on world gold markets for three decades. In 2010, he wrote Building a Global Brand, The London Good Delivery List 1750-2010 for the LBMA.

COMMERZBANK

What you need is a global partner in precious metals

Argor-Heraeus

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg CBGL<GO>
Reuters CBGL
Direct contact +352 477 911 2540

Achieving more together

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request.
Copyright © Commerzbank AG 2012

Forecast 2012 Survey

Metal	Average 1st week Jan 2012	Average 2012 Forecast	2011 Year Average
Gold	$1,603	$1,766	$1,572
Silver	$28.96	$33.98	$35.11
Platinum	$1,412	$1,624	$1,720
Palladium	$655.00	$735.52	$733.63

Forecast contributors expect all four metals to increase in price during 2012 by at least 10%. However, continued uncertainty in the global economy means that contributors are also expecting significant volatility in prices for all metals in the year ahead.

Forecasters expect gold to hit record highs again this year, with a predicted average high of $2,055 during 2012. Analysts cite continued negative real interest rates in the eurozone, expected weakness in the US dollar, debt problems in the US and Japan, as well as further central bank purchases of gold, as factors that could help the gold price break through the $2,000 barrier in 2012. On the downside, the possibility of an improvement in the US economy, China switching towards easing rather than tightening of monetary policy, as well as continued uncertainty in the Middle East and eurozone, are cited as potential negative influences on the gold price. However, overall, analysts remain bullish about gold in 2012, predicting an average of price of $1,766, a 10.2% increase from that recorded in the first week of the year.

Of the four metals, analysts are most bullish about the prospects for silver, with the average price in 2012 forecast to reach $34, 17.3% above the average price in the first week of 2012. But analysts also cite concerns about oversupply and sluggish demand as possible factors that could depress the price of silver during 2012. If analysts are proved right, then silver is in for a roller-coaster ride in 2012.

Analysts are also bullish about the prospects of platinum, forecasting an average price of $1,624, 15% above that recorded in the first week of 2012. Some analysts expect the price to come under pressure in the first half of 2012 on the back of continued sluggish diesel car sales in Europe and Asia, but see increased demand from China, an improvement in the US and euro economies as positive factors that could push up prices later in the year. For palladium, analysts forecast an average price of $735, 12.3% higher than the average in the first week of 2012. The depletion of Russian stockpiles as well as strong links to the US and China automobile markets are seen as factors which could have a positive impact on prices.

To find out more about what will happen to prices for precious metals this year, and what factors are likely to influence their price, read the complete 2012 Forecast Survey, which is now available on the LBMA's website.

Metal	Actual 2010 Average	1st Week Jan 2011	Average Forecast 2011	Actual 2011 Average	Winning Forecast	2011 Winning Analyst	Company
Gold	$1,225	$1,375	$1,457	$1,572	$1,550	Edel Tully	UBS
Silver	$20.19	$29.65	$29.88	$35.11	$34.05	David Jollie	Mitsui & Co Precious Metals Inc
Platinum	$1,610	$1,735	$1,813	$1,720	$1,715	Rohit Savant	CPM Group
Palladium	$526.38	$768.00	$814.65	$733.63	$730.00	Rohit Savant	CPM Group

2011 Forecast winners, David Jollie and Edel Tully pictured collecting their prizes at the LBMA offices recently. (Rohit Savant was unable to make the photoshoot and will receive his prizes separately).

Forecast 2012 is now available on the LBMA website. If you would like a hard copy, please contact alchemist@lbma.org.uk.

The London Bullion Market Association is delighted to congratulate the winning analysts in the 2011 precious metals *Forecast*. The aim of the LBMA *Forecast* is to predict the average, high and low price for each metal as accurately as possible. The prediction closest to the average price in 2011 won (based on the $ daily pm fixing price).

The winning analysts were Edel Tully (gold), David Jollie (silver) and Rohit Savant (platinum and palladium). Many thanks to all the *Forecast* contributors for another excellent year.

The LBMA is grateful to Metalor Technologies SA for its generous donation of all of the prizes for the Forecast. The winners for each of the four metals each received a 1oz gold bar.

Obituary

Stewart is seen fourth from the left at a dinner hosted by the London Bullion Market in the mid '80s marking the retirement of Dennis Suskind (seated left of Stewart). Readers may recognise some of the other attendees.

Stewart R V Pixley 1921 – 2011

It is with great regret that we announce the recent death of Stewart Pixley, at the age of 90. The last individual representing a line of family names associated with the market for over a century, his contemporary being Jock Mocatta.

Stewart became a partner of the family firm of Pixley and Abell in 1947 following seven years in the army. He was the great-grandson of the founder of the firm in 1852, the sixth to carry the family name and the fourth Stewart. In 1957 he amalgamated the partnership with Sharps & Wilkins who were founded in 1811 to form Sharps, Pixley and Company. In 1966 the company was acquired by Kleinwort Benson Limited becoming Sharps Pixley Limited. Stewart retired in 1972 for health reasons.

He was a Liveryman of the Goldsmiths' Company and Freeman of the City of London.

Stewart came from a gentler time in the market; of bowler-hatted attendees at the Gold Fixing, of silver pinned at $1.29 per ounce until 1967 and gold at $35.00 until 1968. As Ed Hoffstatter who Stewart asked to establish Sharps Pixley Inc in New York in 1970 recalls, "Stewart defined for me the meaning of being a true English gentleman". John Coley believes his legacy of the family firm atmosphere is why, to this day, Sharps Pixley people have such an unmistakable identity and camaraderie.

Stewart leaves his wife Mary and two sons.

DIARY OF EVENTS

FEBRUARY 2012

6-9
Mining Indaba Conference
Cape Town International Convention Centre
Cape Town, South Africa
info@miningindaba.com
www.miningindaba.com

MARCH 2012

1
LBMA Annual Party
London, UK
events@lbma.org.uk
www.lbma.org.uk

13
Bloomberg Precious Metals Conference
New York
www.bloomberglink.com

APRIL 2012

17-21
Denver Gold Group European Gold Forum 2012
Zurich, Switzerland
www.denvergold.org

29-30
Dubai Precious Metals Conference 2012
Dubai, UAE
www.dmpc.ae

MAY 2012

14-18
LPPM Platinum Week
London, England

17-19
World Mining Investment Congress
London
sarah.pegden@terrapinn.com
www.terrapinn.com

JUNE 2012

9-12
IPMI Conference
JW Marriott, Las Vegas
www.ipmi.org

18-21
Fifth International Platinum Conference
Sun City, South Africa
www.platinum.org.za

AUGUST 2012

6-8
Diggers & Dealers Forum 2012
Kalgoorlie, Australia
www.diggersndealers.com.au

24-26
9th India International Gold Convention 2012
HICC Novotel, Hyderabad India.
www.goldconvention.in

SEPTEMBER 2012

9-12
Denver Gold Forum 2012
Hyatt Regency, Denver, CO
www.denvergold.org

NOVEMBER 2012

11-13
LBMA Precious Metals Conference
Grand Hyatt Hotel
Hong Kong, China

DECEMBER 2012

10
LBMA Silver Anniversary Event
Mansion House
London, UK

Regulation Update

By Ruth Crowell, Commercial Director, LBMA

LBMA Responsible Gold Guidance

The Responsible Gold Guidance is now a formal requirement of Good Delivery for all gold refiners. The RAC and the Referees have developed this due diligence guidance in order to ensure that all LBMA GD Refiners' Good Delivery bars are free from conflict gold. The LBMA Guidance formalises and consolidates existing high standards of due diligence amongst all LBMA Good Delivery Refiners. This new requirement of Good Delivery is an extension of the LBMA's existing accreditation systems, which currently monitor refiners' financial standing as well as their ability to cast and assay Good Delivery bars. For a copy of the current guidance, please visit www.lbma.org.uk.

The Guidance is based primarily on the OECD Due Diligence Guidance issued in December 2010 as well as Swiss Anti-Money Laundering regulations. The structure of the guidance closely follows the OECD five-step framework for risk-based due diligence in the mineral supply chain. Where there is higher risk, then more due diligence is required and vice versa.

The LBMA continues its work on gold supply chain regulation by engaging with the SEC, OECD and various industry bodies, and through developing the Responsible Gold Guidance for LBMA Gold Refiners.

OECD Due Diligence Guidance - Gold Supplement

The LBMA has been heavily involved in the drafting process of the OECD Gold Supplement, which is expected to be published in early February. The publication date was pushed back from December to ensure that members of the OECD Working Group on Gold were able to adequately review and comment on the supplement. The delay has also been due to the larger than expected volume of issues involved in drafting such a supplement.

In December, the WGC, RJC and LBMA submitted a joint letter to the SEC, showing its support for the OECD Due Diligence Guidance and the forthcoming Gold Supplement. To ensure that the LBMA Responsible Gold Guidance works in conjunction with the other industry initiatives, the LBMA is also working closely with the World Gold Council, Responsible Jewellery Council and the EICC. While there has been no formal response, the SEC has delayed publication of final rules to the period January - June 2012. It is hoped this delay is due to the SEC awaiting the outcome of the OECD Gold Supplement.

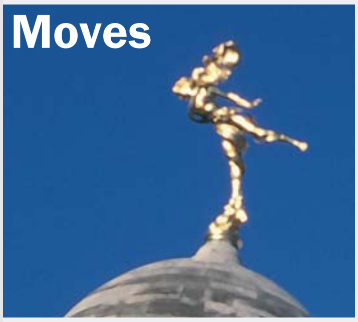
Responsible Gold Guidance Adoption & Implementation Timeline

27 Jan, 2012	Deadline for LBMA GD Gold Refiners to indicate that they accept and will implement the guidelines.
Feb, 2012	Expected Publication of OECD Gold Supplement
Jan-Jun, 2012	Expected Publication of SEC final rules on conflict minerals
***31 Dec, 2012**	First Voluntary** GD Refiner Audit Reports for 2011 due
***31 Dec, 2013**	First Mandatory GD Refiner Audit Reports for 2012 due

* *For some refiners, this may be 30 April, as an LBMA Audit Report will be due no later than one year after the closing of the refiner's financial books.*

** *While an audit report for a refiner's 2011 production is not mandatory, it is encouraged, particularly for refiners that need to meet Dodd-Frank requirements.*

Market Moves



Wolfgang Wrzesniok-Rossbach to Degussa Goldhandel GmbH

Wolfgang joined Degussa Goldhandel GmbH as CEO on 1 November, 2011. With this company, which is backed by one of the wealthiest German families with a long track record in gold investment, a venerable name returns to the bullion market a few years after the original Degussa AG left the precious metals market and was later renamed Evonik Industries AG.

Degussa Goldhandel, with its headquarter located in Frankfurt, will initially concentrate on selling physical precious metals to private and institutional investors offering a wide range of Degussa-branded gold bars and bullion coins. Those will be sold through a branch network in Germany and in other countries such as Switzerland.

Prior to joining Degussa, Wolfgang headed for more than six years sales and marketing for another leading precious metals house, Heraeus Metallhandelsgesellschaft, prior to which he was Head of Precious Metals Trading with Dresdner Bank AG in Frankfurt.

Michael Kempinski to UBS Singapore

Michael joined UBS Singapore in August 2011 with responsibility for Precious Metals in Asia. Michael's career began in 1993 at the Precious Metals desk at Dresdner Kleinwort Benson Frankfurt. In 2000 he moved to Luxemburg to work for Commerzbank. Prior to taking up his new position with UBS Michael was the Regional Head of Precious Metals for Commerzbank Singapore.


Your Global Partner
for precious metals
NADİR METAL RAFİNERİ
Refining, Recycling, Recovery and
Gold, Silver Bars & Coins in Gram Sizes
Au
Gold
196,97
Ag
Silver
107,87
Pt
Platinum
195,08
Pd
Palladium
106,42
LBMA
Istanbul Gold Exchange
DMCC
DUBAI MULTI COMMODITIES CENTRE
THE SILVER INSTITUTE
A Worldwide Assoction of Silver
Miners, Refiners, Fabricators & Manufactures
www.nadirmetal.com.tr
ISTANBUL / TURKIYE

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Associates

On 15 November, 2011, OJSC Nomos Bank of Russia was admitted as an Associate.

Ordinary Members

On 16 November, 2011, Industrial Commercial Bank of China (ICBC) was admitted as an Ordinary Member.

On 14 December, 2011, The Toronto-Dominion Bank of Canada was admitted as an Ordinary Member.

On 31 December, 2011, MF Global UK Ltd was removed from the Membership List due to the company going into administration.

These changes brought the membership to a total of 136 companies, comprised of 62 Ordinary Members (of which 11 are Market Makers), 70 Associates and 4 Affiliate Members.

GOOD DELIVERY LIST

Nadir Metal Refinery of Turkey was added to the Gold List on 8 December, 2011.

Jiangxi Longtianyong Nonferrous Metals Company of China was added to the Silver List on 28 December, 2011.

There are currently 62 refiners listed on the Gold Good Delivery List and 72 refiners listed on the Silver Good Delivery List.

COMMITTEES

Management

The Committee met in November, as well as in December for a strategy meeting which included the chairmen of the Sub-Committees. A particular focus in recent meetings has been on regulation, especially the implementation of the LBMA Responsible Gold Guidance. At the Strategy Meeting, it was agreed that the Membership should be consulted about the LBMA's activities and the services it provides to Members. The meeting also discussed the possibility of carrying out surveys of loco London turnover on a regular basis (similar to the survey of Q1 turnover in 2011 which was described in Alchemist 63).

The Committee reviewed plans for the 2012 Conference in Hong Kong during the period 11-13 November, 2012, which will again be held in association with the LPPM. It also approved plans to mark the LBMA's Silver Anniversary in late 2012, which will include a seminar and a special version of the Biennial Dinner, to be held on 10 December. It is hoped that many of the people involved in the founding and subsequent development of the Association will attend.

The Committee also agreed the plans to relocate the Executive office from Basinghall Street to larger premises in the Royal Exchange Buildings, just across Threadneedle Street from the Bank of England. The move is expected to take place in early March.

The Committee also agreed the plans to relocate the Executive office from Basinghall Street to larger premises in the Royal Exchange Buildings, just across Threadneedle Street to larger premises in the Bank of England. The move is expected to take place in early March. The LBMA has grown significantly in the 10 years since moving to Basinghall Street and the new office will allow more room for the staff and better facilities for Members and other visitors.

The LBMA now has a full-time staff of seven plus Aelred Connelly, who has been seconded from the Bank of England to assist in a number of aspects of the LBMA's Good Delivery work. The increase in staff resources has been needed to cope with the increasing workload brought on by the numerous regulatory issues facing the bullion market. Together with the office move, this has resulted in higher costs and the Management Committee has agreed to increase annual subscriptions for Members, Associates and Good Delivery refiners (the first such increase for three years). Details have been sent to all refiners on the List.

Regulatory Affairs

The RAC met in early December to discuss a variety of regulatory issues. These included the LBMA Responsible Gold Guidance as well as the LBMA's work within the OECD Working Group on Conflict Gold. Since the RAC has met, the LBMA has finalised its Responsible Gold Guidance. Compliance with the Guidance is a new requirement for GD Gold Refiners. The Guidance was circulated to all GD Refiners on 6 January, with copies being sent for information to Members and Associates. The main purpose of requiring all GD gold refiners to comply with this Guidance is so that those banks, dealers and users which buy LBMA-accredited gold bars can do so with full confidence that the gold will be considered by the market to be conflict-free, for instance in relation to section 1502 of the US Dodd-Frank Act.

For more information on the LBMA Responsible Gold Guidance and other regulatory issues facing the precious metals market, see the Regulation Update on page 22.

The RAC also reviewed the LBMA's current contacts with regulators, with a view to improving communication between the LBMA and regulators within the UK, EU and US.

Physical

Apart from August, the Physical Committee met each month last year. The main work of the Committee consists of supervising the processing of GD applications and the Pro-Active Monitoring of refiners. From time to time, this also involves fine-tuning the Rules which govern the GD system. Some important changes in the Rules have been agreed recently. The first is that refiners will have to provide data on their tangible net worth and production on an annual, rather than a three-yearly, basis (though the technical testing part of Pro-Active Monitoring will remain on a three-yearly cycle). In addition, the Committee also agreed to an increase in the minimum net worth that applicants for listing must attain, namely from £10 million to £15 million. Existing refiners which do not meet this criterion will be allowed a grace period of two years to increase their tangible net worth.

The final parameters for the new proficiency testing scheme for gold fire assayers were agreed and the exercise will be initiated in early February.

Work is continuing on a new version of the Visual Guide to Good Delivery bars, which will assist vaults, refiners, referees and auditors in clarifying the difference between physical imperfections (i.e. which would be accepted by London vault managers) and more serious defects, which will result in bars being rejected as non-London Good Delivery.

The Executive's workload in the Good Delivery area seems to increase constantly, partly because of the above-mentioned changes in the Pro-Active Monitoring regime but mostly because of the work on Responsible Gold Compliance described above. In addition, there is no let-up in the number of companies interested in being LBMA accredited. Amazingly, as many as 10 refiners (in seven countries) are now pursuing their ambition to achieve this much sought-after status.

These added workload pressures are further reasons why the Committee recommended increases in GD application fees and also in the annual maintenance fees for existing GD refiners, which were referred to earlier.

Public Affairs

The Committee has begun its work on the arrangements and speaker programme for the 2012 Hong Kong Conference. The will take place in November 11-13 over two full days. This extension of the programme is in response to the continued growth in the number of delegates attending and the need to have more efficient ways of fostering contacts between them.

Finance

The Committee met in September to review the three-year budget forecast in the light of the income and expenditure for Q1 to Q3 2011 and the financial implications of the Executive's move to the new premises.

In November, Terry Carroll informed us that he was retiring from both his position at HSBC and the Committee. Terry's contribution to the work of the Committee, since joining it in July 2001, has been immense and he will be sorely missed. The members of the Committee and the Executive send him our best wishes for a long and happy retirement. There was already a vacancy on the Committee due to the move of Jeremy East to the Membership Committee. The two vacancies have now been filled by Peter Roberts of Mitsubishi (who has transferred from the Membership Committee) and Brian Pereira of Brinks.

In November, Terry Carroll informed us that he was retiring from both his position at HSBC and the Committee. Terry's contribution to the work of the Committee, since joining it in July 2001, has been immense and he will be sorely missed.

VAT Group

Discussion has continued within the VAT Group about the development of a new Memorandum of Understanding on the VAT treatment of bullion market transactions. The aim is to produce a document that will cover both the LBMA and LPPM metals and which will be accepted by both these markets and by HM Revenue & Customs as a practical guide for members. This discussion has been protracted because of the need to resolve two difficult issues (relating to the storage of allocated precious metals and transactions between non-members which are under the effective physical control of members). It is hoped that a final version of the MOU will be available for distribution to all members shortly.

Annual Party

Staff at Members and Associates should mark their calendars for the 2012 LBMA annual party to be held on 1 March. Details of this Members-only event will be circulated shortly to contacts in all companies within the membership. Registration opens at the end of January. The party will cost £25 (plus VAT) per person. Please contact your official LBMA contact closer to the time to be added to your company's list of participants.

Staff at Members and Associates should mark their calendars for the 2012 LBMA annual party to be held on 1 March.

Committee Vacancies

There is a vacancy on the Membership Committee due to the move of Peter Roberts to Finance. There are also two vacancies on the Regulatory Affairs Committee following the departure of Chris Savage and Farham Amin, who have been reassigned internally.

Anyone from a member company interested in applying for these roles should send an email to the Chief Executive with a brief statement of their bullion market experience.

LBMA Executive – Employment Opportunities

There are two positions available at the LBMA Executive, Public Relations Officer and Office Administrator. For a detailed job description, please contact the Chief Executive.

The RAC - Twelve Months On

Editorial Comment Ed Wells, Chairman, LBMA Regulatory Affairs Committee

New regulation, and the threat of ever more regulation, is taking an increasing proportion of our time. To help the Members of the LBMA be more informed about what is going on and to have a stronger voice in the regulatory debate, the Regulatory Affairs Committee (RAC) was established a year ago. Initially there was some hesitation about this move on the grounds that it could duplicate other work being done - for example by Members' Compliance teams - or it would find difficulty coming to an agreed position amongst such a diverse membership. Ultimately, the example of REACH convinced the LBMA Management Committee that it was time to grasp the regulatory nettle.

REACH (Regulation, Evaluation, Authorisation and Restriction of Chemicals) is a piece of European Union Regulation which came into force in 2007 and which governs all chemicals. Regardless of the fact that gold does not pose any risks to human health or the environment, gold is included in its scope. Companies which produce or import a significant amount of gold (>1 tonne per annum) must register and comply with this regulation. Once the LBMA had established that gold was within the scope of the regulation, the Association worked successfully to create an exemption for London Good Delivery bars. However all other gold in the EU still must be compliant with REACH.

The Management Committee wants the RAC to ensure that the London Bullion Market is kept informed in a timely manner about future regulation. The RAC is currently composed of LBMA Member representatives together with a representative from a GD Refiner and the CEO of the International Centre for Financial Regulation. It is not set up to compete with existing groups tackling difficult issues in the financial sector (e.g. the Futures & Options Association with regard to MIFID) but instead to complement their work. The Committee worked effectively to assist the lobbying efforts of the World Gold Council to ensure that gold is treated as a high quality liquid asset in the implementation of Basel III. The LBMA Gold Turnover Survey for Q1 2011 gave the WGC vital statistics to strengthen its work in this area. In doing so it provided a clear picture of the size of the London gold market.

To help the Members of the LBMA be more informed about what is going on and to have a stronger voice in the regulatory debate, the Regulatory Affairs Committee (RAC) was established a year ago.

The RAC has since played a leading role in addressing gold supply chain regulation, which required specialist knowledge from the bullion market. Creating the LBMA Responsible Gold Guidance has been the largest body of work for the RAC in the past year. This Guidance is intended to ensure that banks, dealers and users which buy LBMA Good Delivery gold bars can do so with full confidence that the gold will be considered by the market to be conflict-free, specifically in relation to the US Dodd-Frank Act and the OECD Due Diligence requirements. Compliance with this Guidance is now a new requirement for GD Gold Refiners. The RAC has also assisted the LBMA in responding directly to the SEC and the OECD on behalf of the bullion market in relation to proposed supply chain regulations. (For further information on this work, see the Regulation Update on page 22.)

In 2012, the RAC will continue its work on supply chain regulation, with continued assistance from the Referees and the Physical Committee.

In 2012, the RAC will continue its work on supply chain regulation, with continued assistance from the Referees and the Physical Committee. There are also plans to repeat the Survey of Turnover to provide regulators and others with a better understanding of the size and importance of the London gold market. Looking forward, however there is still much work to be done in analysing and responding to the other (non-conflict-minerals) sections of the US Dodd-Frank legislation. In particular, the RAC will be looking at possible reporting and position limits for OTC derivatives. These issues are also being looked at in the EU and will need to be addressed there as well.

The LBMA will also continue to develop its interaction with UK, EU and US regulators. This targeted approach will improve the levels of awareness and understanding of the bullion industry and the role of the LBMA in representing its Members' interests. In spring 2012, a Management Committee delegation will be visiting US regulators to introduce the LBMA and educate them on the structure and strength of the London market. The focus of the LBMA's regulatory approach for the coming year will continue to be on gathering and disseminating information to the Membership, working to ensure that regulators and policymakers have a better understanding about the role and functioning of the London Bullion Market. We may not be able to prevent new regulation coming our way, but we can help to ensure that it is better informed in the future.

facing facts

Paul Burton
Senior Equities Analyst
Thomson Reuters GFMS

Record Margins = Dividends Windfall?

Producers' margins are outpacing cash cost inflation, so with treasure chests full, will the miners deliver a Christmas present to their shareholders?

Our analysis of the gold mining industry in the Winter issue of the World Gold Analyst, shows that Q3 cash costs for the 70-plus gold producers that we cover, rose 17% year-on-year to \$634/oz.

This follows increases of 17% year-on-year in Q2 and 16% year-on-year in Q1 and, indeed, slightly higher annual increases over the past few years.

In a static or declining price environment, such increases could possibly be signalling terminal decline of a mature industry, but with the gold price rise of recent times (even after the recent pull-back), costs of \$634/oz look very respectable when measured against a \$1,600 to \$1,700/oz metal price.

In fact, it is often not entirely understood that the gold price rise is a contributing factor in mining cost inflation. While mine site cost inflation certainly continues to play a strong underlying role, with fuel, electricity, labour and consumable costs continuing their steady climb, other factors are more significant in recent dramatic cost rises. As the gold price gets higher, miners can reduce cut-off grades and bring lower grade mineralisation into ore reserves and thus the mining plan, leading almost invariably to higher unit gold costs. In its Gold Survey 2011, Thomson Reuters GFMS found that declining ore grades was the second most significant factor in upward pressure on operating costs (foreign exchange movements was the most important).

So despite record costs in Q3, cash margins themselves reached record levels with more than 30 companies reporting margins in excess of \$1,000/oz, with Mexican gold producer, Minefinders, the industry leader with a staggering margin of \$2,264/oz!*

Of course, cash margins do not tell the whole story as the actual cost of mining is higher than that – staying-in-business costs also must be included – but even with all-in costs at around the \$900/oz mark in the first half of 2011, the industry is enjoying healthy margins and cashflows.

The fact that producers are making money does not seem to have registered with investors and that's part of the reason for the lacklustre performance of gold stocks this year, despite a strong gold price. What might perk up investors' interest is some positive news regarding what producers are going to do with their treasure chests.

The world's largest producer, Barrick Gold, had a cash margin of \$1,290/oz in Q3 and held cash of almost \$3 billion at the end of the period. Newmont Mining, the second-largest producer in the world, reported a margin of \$1,067/oz and cash of \$2.1 billion; and another major North American producer, Goldcorp, recorded a cash margin of \$1,461/oz and \$1.5 billion of cash.

So the big question is: "Can shareholders expect to receive a share of this cash?" The answer seems to be a qualified "yes".

The three big miners mentioned above all have large capital commitments for their pipeline of development projects, but they are making so much money that it is no longer a case of growth or dividends – the two can coexist. Newmont CEO, Richard O'Brien, said recently: *"Newmont's cash flow and balance sheet strength in the current metal price environment provide us with the flexibility and strength to simultaneously fund our internal growth pipeline and return meaningful cash to our shareholders."*

In fact, under Newmont's new gold price-linked dividend policy, its annual dividend has the potential to increase to \$4.70 a share if the company's average realised gold price reaches \$2,500/oz. Before shareholders get too excited, Newmont has just raised its quarterly dividend by 17% to \$0.35/share, making \$1.00/share for the year, so a long way from \$4.70.

Goldcorp, meanwhile, has just announced a 32% increase in the annual dividend to \$0.54/share and Barrick has upped its quarterly dividend by 25%, from \$0.12 to \$0.15/share, making \$0.51/share for the past 12 months.

So it seems that shareholders will benefit somewhat from gold's dramatic rise of recent times and increased dividends will be most welcome. But as these dividends represent yields of only between 1.1% (ABX, G) and 1.6% (NEM) they are hardly likely to provide much festive cheer to investors, who have seen little capital appreciation of their gold stock holdings over a period when the gold price has risen by around 25%.

Paul Burton Senior Equities Analyst, Thomson Reuters GFMS.

Paul Burton graduated as a mining engineer from the Camborne School of Mines in 1975 and spent almost twenty years working in the South African gold mining industry before becoming editor of *World Gold Analysts* in 1996, a position he still holds. In 2008 he became Managing Director of GFMS World Gold until the company was acquired by Thomson Reuters last year and is now Senior Equities Analyst, Thomson Reuters GFMS.

He is an established speaker on the international conference scene and is Chairman of the FTSE Gold Mines Index Committee.

He holds an MSc in Mineral Economics and an MBA from the University of the Witwatersrand.

* *Minefinders' costs per ounce for gold are offset by revenue credits from their associated silver production, leading to a negative cash cost and thus an anomalous-looking margin in excess of the current gold price.*

**The Alchemist is published quarterly by the LBMA.
For further information please contact Ruth Crowell,
13-14 Basinghall Street
London EC2V 5BQ
Telephone: 020 7796 3067
Fax: 020 7796 2112
Email: alchemist@lbma.org.uk
www.lbma.org.uk**

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the **Alchemist** is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as **'Good Delivery'** by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only five **'Good Delivery' Referees** of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for **a variety of sophisticated precious metals products**, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP®
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPPM
GOOD DELIVERY REFEREE

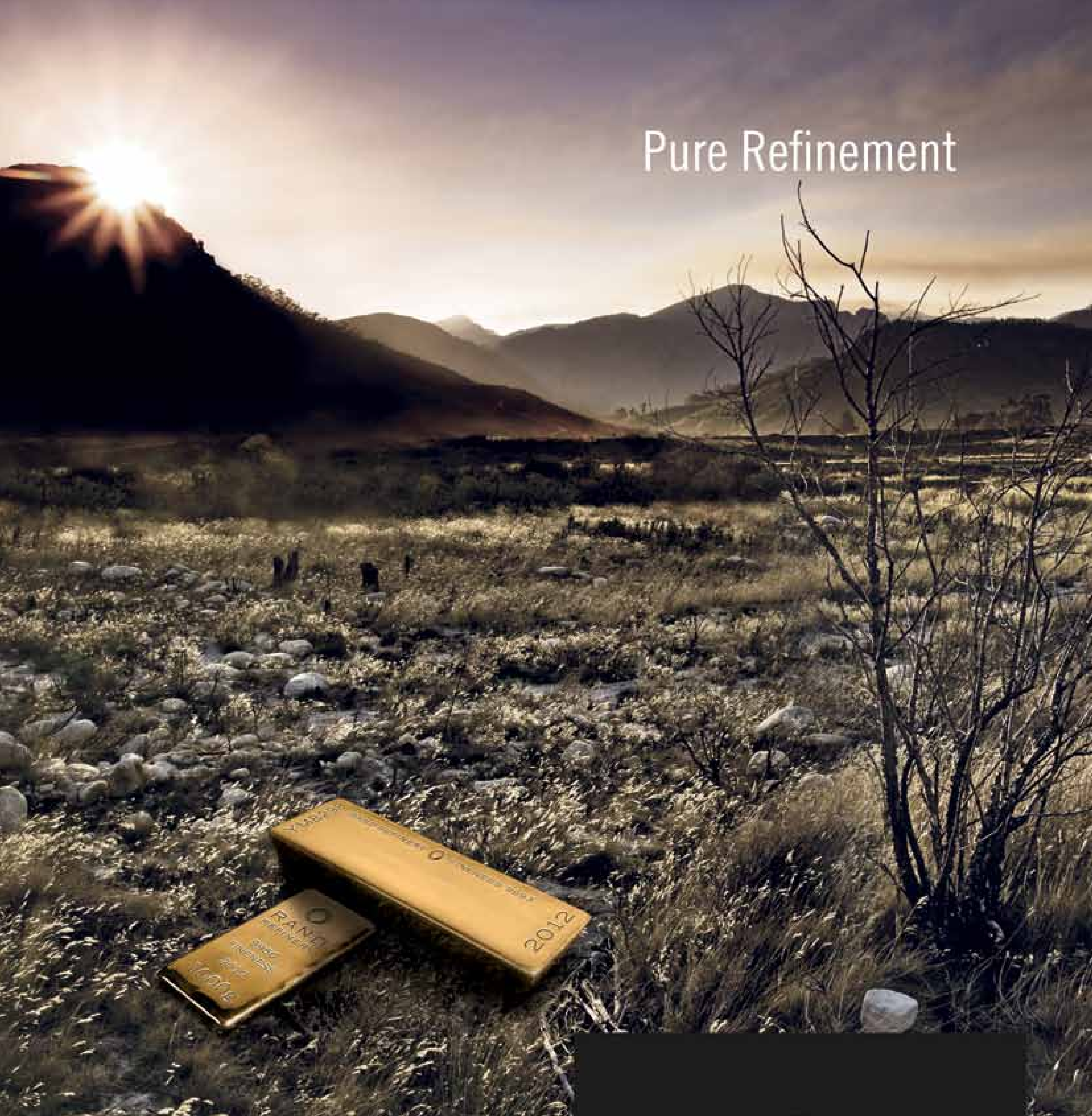
LBMA

Alchemist

The London Bullion Market Association ISSUE 66 April 2012

In this issue

Michael Wilson and Elena Lee review current gold production in Kazakhstan and consider how new regulations are impacting on domestic gold production capabilities and gold sales in their article on page 12. The photo above shows the Sekisovskoye open pit gold mine, located at the Seki village, near Ust Kamenogorsk, North East Kazakhstan.



Rand Refinery is the world's largest single site gold refining and smelting complex. Our diverse range of industry leading services includes smelting, refining and fabrication. As the only LBMA referee in the southern hemisphere, we are able to deliver ethical, responsible and cost-effective solutions to a growing list of global clients. So whatever your gold related business needs are, you can rest assured that we have the experience and expertise required to turn your vision into reality.

RAND REFINERY

Our Vision: Providing access to wealth across the world, through sustainable integrated metals management

www.randrefinery.com

The Challenges of Hedging

By Donald Douglas, CEO and Emma Jenkins, Director, Cambridge Risk LImited

In their article, Donald Douglas and Emma Jenkins delve into the world of hedging strategy in the metals mining industry. They consider what hedging is, why it takes place, pricing strategies as well as some of the common pitfalls to avoid when negotiating a hedge.

In these days of rising metal prices, hedging is often regarded negatively. However, rising prices also mean that a number of previously marginal deposits are now economic to exploit and a sensible hedging programme has a role to play in underpinning a medium- to long-term business strategy. The main benefits of a hedge are that it (1) protects a mine from a future downturn in metal prices and (2) can improve the debt-carrying capacity of the project, leading to an increased return on equity.

There are too many examples of where hedging has gone wrong in the past (Ashanti, Pasminco, Sons of Gwalia, Sumitomo and Metallgesellschaft). The reality is that many of the 'hedge' strategies employed by these companies were not true hedges. Common structural faults include:

- committing too high a proportion of underlying production to the hedge programme;
- using overly complicated products with barriers and/or embedded leverage;
- failing to examine how the hedge would perform in both upside and downside price scenarios; and
- disguising price speculation.

So when is hedging appropriate and how can pitfalls be avoided?

First of all, why hedge?

Investors generally do not want their companies to hedge, preferring to benefit, or suffer, from any change in the price of the underlying metal. However, mining is a business with a long time horizon and investors are often the first ones to abandon a poorly performing stock (e.g. an unhedged orebody in a falling price environment). The views of shareholders must be taken into account, but they need to be balanced against the view of other stakeholders and the nature of the underlying orebody.

Often a hedge programme is an integral part of the development plan for an orebody. There are few projects that can be fully funded from the equity markets. Most projects seek debt funding from the banks. The more debt a project can bear, the higher the return on equity and the lower the dilution for existing shareholders. To ensure repayment of debt, even in adverse market conditions, the lenders frequently impose a hedge programme subject to a series of constraints.

> *“It is not possible to construct a hedge that allows a miner to escape from the vagaries of the market, but a well-structured hedge should deliver a smoothing effect to allow the mine plan to be adapted on the time horizon that suits the orebody (and not the market).”*

Even if a hedge is not required to bring an orebody into production, for all but the highest quality orebodies, a degree of hedging is still warranted. To maximise the economic potential of an orebody, the mining plan is prepared based on a price assumption. It takes time to reconfigure the mining plan in the light of significant deviations of market prices from the price assumption. If the price rises substantially, time is needed to change the mining schedule to access lower-grade areas. Conversely, if the price drops, at what point would the mine be shut down (potentially triggering environmental rehabilitation costs)? While market prices can move erratically within very short timeframes, clearly mines need longer to optimise the mine plan relative to the price environment. It is not possible to construct a hedge that allows a miner to escape from the vagaries of the market, but a well-structured hedge should deliver a smoothing effect to allow the mine plan to be adapted on the time horizon that suits the orebody (and not the market). This is the ultimate aim of a sensible hedging programme.

Besides metal prices, currencies, interest rates and energy prices can have a major influence on profitability and should be addressed in conjunction with metal risk.

What is a hedge?

A hedge usually consists of a series of outright or contingent sales of metal at fixed prices for an agreed set of forward dates matched to the production plan. Outright sales are generally described as forward contracts, and contingent sales as put options.

A miner does not pay anything upfront to enter into a forward contract. The cost of the forward comes via the commitment to deliver a fixed amount of metal on a delivery date in the future irrespective of the then prevailing market price. That is, the miner is committed to delivering the production at the agreed fixed price even if the subsequent market price is higher.

> *"A hedge usually consists of a series of outright or contingent sales of metal at fixed prices for an agreed set of forward dates matched to the production plan."*

Put options operate like insurance contracts in that they are only used (or exercised) when the cover is needed (i.e. when the market price falls below the agreed price). There is an upfront premium payable when entering into put options. To defray the cost of puts, miners frequently combine them with call options to form a collar. In a collar, the miner receives a put option to protect against falling metal prices, but sells a call option to pay for the put option. The call option is a contingent purchase of metal and represents a commitment on behalf of the miner. A pairing of a bought put and a sold call have the effect of guaranteeing the miner a minimum price (the strike of the put option) but limiting the maximum price received (the strike of the call option). In between the maximum and the minimum, the miner receives the market price. Such a collar is generally called a zero-cost collar.

Every miner would like a hedge consisting of 100% put options without having to pay for them, but that is impossible. A well-structured hedge has a balance between the degree of protection (i.e. bought put options and forward sales) and commitments given up (i.e. forward sales and sold options).

How much does it cost to hedge?

Just because a hedge is zero-cost, it does not mean that it costs nothing. A zero-cost hedge involves no cash payment upfront; the value is taken by the provider of the hedge by skewing the terms of the hedge in its favour. For example, if the mid-market forward price for gold is US$1,750/oz, the hedge provider may offer to purchase gold from the miner at US$1,700/oz. In this instance, the cost of the hedge is the present value of the difference between the market forward price and the contracted forward price (i.e. US$50/oz) times the volume on the contract.

Hedging can be expensive, and the cost of a hedge can be difficult for a miner to establish. Remember that many hedges are entered into at the behest of lending banks in conjunction with a debt facility. Banks make a lot of money out of hedging, often more than they do from the underlying credit facility. When a debt facility is being evaluated, it is critical to establish the quantum of hedging that would be required under the facility and the cost of that hedging.

The size and timing of the hedge programme and the instruments to be used should be negotiated with the hedge providers. When a hedge is part of a debt facility, the price assumption for the unhedged metal should also be questioned and negotiated.

Pricing of the hedge is a key issue and it is helpful to understand how it is arrived at, although hedge counterparties may be unwilling to disclose it. Credit pricing is a key issue, often using complex proprietary models and may be negotiable. The price of volatility (a key component of the cost of options) can usually be analysed, but a miner may need specialist help to do this. Prior to executing a hedge, it is helpful to request indicative pricing to gauge embedded costs and to establish benchmarks that the executed hedge can be compared against. Where several counterparties are in competition for the hedge, it is useful to run a pricing exercise requesting indicative pricing for a specified hedge structure with regard to specific market conditions. The variation between counterparties can be surprising.

> *"The price of volatility (a key component of the cost of options) can usually be analysed, but a miner may need specialist help to do this."*

How does a miner avoid common pitfalls?

Define what is appropriate for the company: In advance of negotiating with hedge counterparties, formulate a board policy. Do not wait to be dictated to by the counterparties.

Do not overcommit: Determine how much production is truly available for delivery into hedge contracts, not forgetting to take account of claims such as royalties and off-takers' shares. In the past, hedge programmes had up to 70-80% of production committed to the hedge. These days, 50-60% would be considered high.

Match terms to sale contracts: It may seem obvious, but it is important to match the terms of the hedge contract with the terms of the sale of the metal. This can be through an off-take or refining contract that may have some complex timing and option features in it. Failure to do this can, and probably will, result in hedging losses (i.e. hedging that does not work).

Allow for real life: It is worth remembering to allow for delays in production ramp-up. Avoid entering into forward contracts for the first scheduled periods of production. Instead, use bought put options, which do not require delivery.

Keep it simple: Complex products usually have high hidden costs and should only be used if necessary to match the sale terms.

Stress-testing: When structuring the hedge programme, it is worth 'stress testing' it, for example, what if the price goes up and production is delayed? Running several scenarios should help to come up with a programme that is robust. It should, of course, be closely tied in to the latest version of the mine plan.

> *"The global financial crisis put the spotlight on the banks, and miners are more conscious of selecting quality counterparties for long-term hedge programmes. A miner has credit risk on a hedge counterparty for forward sales contracts and bought put options. Also choose counterparties that have good access to the market."*

Choice of counterparties: There are two key drivers in the choice of hedge counterparty, the first being credit quality and the second being metal market expertise. The global financial crisis put the spotlight on the banks, and miners are more conscious of selecting quality counterparties for long-term hedge programmes. A miner has credit risk on a hedge counterparty for forward sales contracts and bought put options. Also choose counterparties that have good access to the market. Some banks are market takers and lay off the metal risk with the major players after adding on their own margin, thereby increasing the cost to the miner. The major players (i.e. market makers) have better execution capabilities and larger appetite for warehousing metal risk.

Stay involved in the execution: First and foremost, refrain from discussing a proposed hedge in the public domain until it has been executed. Market players monitor newswires for statements about producer hedging and position themselves accordingly, which can move a market against a producer. For a large hedge, execute in tranches, monitoring how the market digests each tranche. If the market

moves against you, be patient and do not chase it. If multiple hedge counterparties are involved, have a plan for each to have a turn executing. Ideally, use up capacity from the larger players first.

A hedge is not just for the day it is executed: Check the documented transaction against indicative pricing proposals and execution notifications to ensure what was discussed and agreed has been executed. Do not wait for the first settlement date to discover that you bought instead of sold! At regular intervals, value the hedge portfolio, assess hedge effectiveness and monitor credit exposures to hedge counterparties. The sooner any issues are identified, generally the cheaper they are to address.

Wisely used, hedging is a potent tool in the corporate treasury armoury and should not be dismissed as irrelevant, even in the current bull market run. Remember, metal prices can fall as well as rise.

Donald Douglas, CEO, Cambridge Risk Limited
Donald's career in financial services and commodities spans more than 30 years. After qualifying as a chartered accountant, he worked with J.P. Morgan, N M Rothschild and Cambridge Risk, gaining extensive experience developing risk models for banks and financial instruments for clients – in metals, interest rates and currencies. Since establishing Cambridge Risk, he has advised a number of mining companies on hedge strategies, banks on risk models and acted as an expert witness on a number of metal related cases. He has served on the board of the Association of Mining Analysts and has spoken at conferences in Africa and Australia on mining and hedging.

Emma Jenkins, Director, Cambridge Risk Limited
After graduating with a first-class honours degree and a gold medal in mathematics from Trinity College, Dublin, Emma spent more than 14 years at a series of leading investment banks in London and Sydney, including Goldman Sachs and Credit Suisse. She specialised in structuring commodity derivative strategies, particularly in precious metals, for producers, consumers and traders. She frequently integrated commodity risk management strategies with debt financings, and interest rate and FX strategies. Since 2006, she has been operating as a consultant combining commodity consultancy services with delivering commodity training programmes.

Your global partner for precious metals

Active in the physical and non-physical markets for almost a century, our award winning[1] dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

– Gold, silver, platinum and palladium
– 24h global service from hubs in Switzerland, the US, Singapore and the UK
– Physical precious metals custody in our Swiss vaults
– Coins: trading, handling and storage
– Structured products and tailor-made hedging solutions
– Full range of OTC derivatives
– Gold, Silver, Platinum, Palladium ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich:	+41-44-239 4111	Stamford:	+1-203-719 1178
Lugano:	+41-91-801 9990	Singapore:*	+65-6495 3757
Geneva:	+41-22-389 5335	London:*	+44-207-567 6752

*non physical only

Risk & Energy Risk COMMODITY RANKINGS 2012

Intended for investment professionals only

We will not rest UBS

www.ubs.com/preciousmetals

1. No.1 in Precious Metals Overall Dealers and No.1 for Research in Precious Metals, Risk and Energy Risk Commodity Rankings 2012. © UBS 2012. All rights reserved. 41687

Visit to JBR Recovery Ltd

By Rebecca Adamson, GDL Officer, LBMA

JBR is one of Europe's leading processors of scrap materials containing silver, gold and other PGM metals. Their specialist skills have targeted secondary or waste materials, especially the photographic industry - the largest user of silver; but also include other source streams such as manufacturing processes. A member of the LBMA, they are one of only two UK companies who are physical suppliers of 'Good Delivery' silver to the London Bullion Market, producing upwards of 250 tonnes of 999 silver per annum. In this article Rebecca Adamson describes her visit to the JBR's operation in West Bromwich in the Midlands and sees first hand how silver-bearing feedstock is transformed into LBMA Good Delivery silver bars.

The picture shows the casting of the Good Delivery silver bars.

I left home with the moon still high in the sky and a crisp covering of frost outside. I met Stewart Murray at Euston station with enough time to grab a quick cup of coffee before hopping onto the Virgin train to Sandwell & Dudley station, just beyond Birmingham. We were met by Richard Punt, Operations Director at JBR, and his colleague, Keith Davies, who took us to the site. On arrival, we were invited to suit up in warm, waterproof jackets, wellington boots, safety hats and glasses.

Passing through security, we emerged into the central yard of the plant just as the rain began to fall. RP explained that, rain or shine, the yard is kept permanently wet, to keep dust levels to a minimum and simultaneously to capture any silver-bearing material that would otherwise escape and have a detrimental effect on the plant's effluent emissions (and its bottom line!). All of the water on site is collected in sumps at the lowest level of the plant area. Any solids in the water are trapped there so that from time to time the precious materials contained within them can be recovered.

> *"RP explained that, rain or shine, the yard is kept permanently wet, to keep dust levels to a minimum and simultaneously to capture any silver-bearing material that would otherwise escape and have a detrimental effect on the plant's effluent emissions (and its bottom line!)."*

First, we were shown some of the silver-bearing feedstocks that the plant treats:

- Great piles of shredded X-ray film of two types, one with a thin silver-bearing layer on celluloid and the other with the silver in a sandwich between two layers of PET (much more difficult to recover)
- Huge rolls of rejected photographic paper
- A mass of greyish sludge emanating from the photographic industry
- Large sacks containing faulty blood-testing strips (which are designed for use by diabetics) each containing a tiny conductive silver strip.

RP informed us that the silver content of these feedstocks varies between 0.15% and 3.0%. Before these materials can be processed, they have to be sampled so that the supplier can be paid the right amount for the contained metal. This is done by shredding and then incinerating

Pictured above are cupels which have just come out of the assay cupellation furnace. The little silver beads, which you can just see, when cool, will be weighed and used to calculate the assays of whatever has been fire assayed.

a small representative amount in a separate furnace, under controlled conditions. The ash is then sent to the lab for analysis.

The main incinerator is a large, rather menacing piece of machinery within a housing shed. The shredded feedstock travels up a conveyor belt before being pushed into an inclined rotating kiln. The exhaust gases are cooled before solid particles are removed within the bag (i.e. filter) house. The ash from the kiln drops into a water bath below the kiln and after filtration, it is ready for the next stage – the blast furnace. We had to stand a good distance away from the blast furnace due to the continuous stream of molten slag being tapped from it. The ash is fed continuously into the furnace along with lead oxide, lime and a silica flux. The other element included in the charge is coke, which as well as fuelling the furnace, produces the reducing atmosphere that results in the formation of liquid lead, which also collects the silver contained in the ash. The lead bullion is tapped and cast into large ingots, which are later melted in a tilting convertor furnace, where oxygen is blown through the molten material to form lead oxide, which floats to the top, leaving molten silver beneath. The silver ingots from this process, now ~99% pure, are loaded into the titanium baskets in the Moebius electrolytic cells for the final stage of the refining process. The resulting high-purity silver crystals are removed, dried and then finally melted for pouring into cast iron moulds to produce 30kg Good Delivery bars on a rotating table, so that the operators can easily pour the silver into one mould and then immediately move on to the next. It was fascinating to observe how quickly the metal cooled from a white hot liquid, as mobile as water, into a solid silver bar. The bars were emptied carefully onto a trolley for cooling. At this point, the bars still had a red glow within, looking almost magical.

> *“It is salutary to realise that without JBR and similar refiners on the silver list, who are able to recover tiny percentages of silver from a wide range of waste materials, the world’s landfills would be filling up a lot faster.”*

The next part of the visit was to the lab where we met Tony Kenna (Lab Manager) and were taken on a tour of the laboratory where the samples of all raw materials and finished products are analysed. Having seen the various types of feedstock received, it was clear that analysing these required quite different skills from those we have seen, for instance, in gold refineries.

At the end of our tour, we were escorted back through security, involving a full body scan with all metal removed, then a quick change and we were off to lunch with RP and other JBR executives, including our old friend Brian Meddings.

It is salutary to realise that without JBR and similar refiners on the silver list, who are able to recover tiny percentages of silver from a wide range of waste materials, the world’s landfills would be filling up a lot faster. And that they do this without producing harmful emissions or effluents.

On behalf of Stewart and myself, many thanks to Richard Punt and his colleagues for making our visit so enjoyable.

Rebecca Adamson
GDL Officer, LBMA
Rebecca is the LBMA’s GDL Officer, and is primarily responsible for the administration of the LBMA Good Delivery System, including applications and Proactive Monitoring. Rebecca joined the Executive in 2010, having previously worked as a consultant to the LBMA since 2008.

LBMA Annual Party - 2012

The Association's Annual Party was held at the Alchemist bar in Houndsditch on Thursday, 1st March. A record attendance of more than 300 Members and Associates were entertained by demonstrations on Alchemy and Cocktail making. Many also participated in the Alchemist Treasure Hunt which puzzled some and intrigued others. A thoroughly enjoyable evening was had by all.

The Royal Mint expands into the investment bullion market

By Nick Bowkett, Bullion Sales Manager, The Royal Mint

Designing and producing coins has been at the heart of The Royal Mint's responsibilities for over 1,000 years. In his article, Nick Bowkett reviews The Royal Mint's new investment strategies, designed to help meet increased demand for bullion coins. Indeed 2012 promises to be a significant year as The Royal Mint's commemorative coin programme celebrates two of the biggest events in recent history, the London Olympic and Paralympic Games and the Queen's Diamond Jubilee.

"2012 promises to be a significant year for the business for two reasons," explains Nick Bowkett, Bullion Sales Manager at The Royal Mint. "Firstly, our commemorative coin products place us at the heart of the celebrations of two of the greatest events in our nation's history – London 2012 and The Queen's Diamond Jubilee.

Secondly, we will be expanding into the investment bullion market with our product offering – a hugely significant move forward for The Royal Mint as it's a new strategic direction for us."

Whilst 2012 brings with it a new focus on the bullion market, a move into producing and supplying investment bullion coins is not a completely new phenomenon for The Royal Mint, as you would expect from a company with over 1,000 years of history in crafting coins. Designing and producing coins of the realm has been its business for many years, but the real jewel in its crown is the Sovereign – one of the most universally recognised coins to ever be struck. Acknowledged globally and accepted as currency in more than 20 countries across the world, the Sovereign is the 'king of coins' whether it is bought for sentimental reasons or investment.

"For centuries, particularly during times of economic uncertainty or financial insecurity, people have turned to gold – and gold coins in particular – as a safe haven in terms of investment. The fact that we are seeing an increasing demand for our bullion Sovereign – and Britannia coins – suggests that gold's stability remains as compelling as ever for today's investors," continues Nick.

"As part of The Royal Mint's growth plans into bullion, a new specification Britannia bullion 1oz gold (99.99% purity) and silver (99.9% purity) has been devised, creating a more refined product."

The increasing demand for bullion in recent years has led The Royal Mint to create a dedicated team, headed by Nick Bowkett, to not only manage existing business but also to pursue a growth plan that aims to position The Royal Mint as a world leader in investment bullion.

"We already have a client base of private investors, leading banks, advisors and dealers from the bullion marketplace," says Nick, "but 2012 will see us take a proactive approach to acquiring new customers through developing our bullion strategy, and refining everything from products to packaging in order to keep our Sovereign and Britannia coins at the forefront of quality for the world's bullion markets."

As part of The Royal Mint's growth plans into bullion, a new specification Britannia bullion 1oz gold (99.99% purity) and silver (99.9% purity) has been devised, creating a more refined product. We have also reviewed our packaging, moving from blisters to more durable tubes for easy storage and convenience.

Longer-term developments include a precious metal vaulting facility for bullion investment customers to store coins purchased from us. The Royal Mint is a highly secure facility guarded by the MOD Police, so this will provide a unique and ideal storage option for those who want to protect their investment gold in the best way possible."

Nick Bowkett, Bullion Sales Manager

After nine years in the UK high-end luxury goods market, Nick transferred his skills to The Royal Mint. Upon joining the business in 2009, he took on the responsibility for securing relationships with headline sponsors of the London 2012 Olympic and Paralympic Games, creating unique sales avenues for Royal Mint products including BP, Panasonic and General Electric Gifting.

The Gold Sovereign: quality assured by Act of Parliament

The first gold Sovereign was struck in 1489 by order of King Henry VII and took its name from the regal portrait of the Monarch that appeared on its obverse – a tradition that is observed to this day.

Over the centuries, its reputation grew, until the Sovereign became known as 'the chief coin in the world'. In fact, the gold Sovereign was a recognised currency in more than 20 countries during the 19th century and still enjoys immense status throughout the world.

Yet bullion coins from The Royal Mint are guaranteed by more than simply 1,100 years of history and integrity. The specification of every Sovereign is ensured by the Coin Act of 1816, which ensures the gold content is guaranteed to four decimal places, as well as the annual Trial of the Pyx, whereby every new coin stands trial before a jury of 12 independent experts and assayers.

It is this unrivalled history, reputation and reliability that combine to ensure that the Sovereign offers the bullion market something that no other coin can – absolute confidence in its gold content and weight, accurate to four decimal places.

"Those who know the story of the Sovereign will be familiar with its illustrious history. It is certainly gratifying to know that the Sovereign has endured the rigours of the centuries to still reign as the king of coins. It stands for unrivalled quality and that is, of course, the very essence of the Sovereign, providing the key to its enduring popularity both at home and abroad."

The Bullion Britannia: created exclusively for the international bullion market

The Britannia coin was announced by the Chancellor of the Exchequer in 1987, in order to satisfy global demand for UK bullion coins offering exactly one ounce of fine gold and silver.

Now in their 25th year, these precious coins continue to play a key role in global bullion markets, as well as representing both the pride and the probity of the United Kingdom across the world.

COMMERZBANK

What you need is a global partner in precious metals

Argor-Heraeus

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg CBGL<GO>
Reuters CBGL
Direct contact +352 477 911 2540

Achieving more together

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request.
Copyright © Commerzbank AG 2012

Kazakhstan's Gold Mining Sector and the New Regulation on Gold Sales

By Michael E. Wilson, Director, and Elena Lee, Senior Lawyer, Michael Wilson & Partners Limited

In their article, Michael Wilson and Elena Lee review current gold production in Kazakhstan and consider how new regulations are impacting on domestic production capacities and gold sales. Their conclusion is that they expect, at least for the foreseeable future, that Kazakhstan will refine all the gold it produces and also that the National Bank will exercise the State's priority to purchase all gold bullion produced in the country.

Kazakhstan currently ranks ninth in the world (third in CIS,[1] after Russia and Uzbekistan) in terms of gold reserves and 25th (third in the CIS) in terms of gold production. According to the Ministry of Industry and New Technologies of Kazakhstan (MINT), the competent body, gold production was 36.6 tonnes in 2011, a 21.1% increase over 2010, including 16.6 tonnes[2] of refined gold.

There is an ambitious plan to increase gold production to 70 tonnes per annum by 2015. Kazakhstan has 293 gold deposits (38% gold-complex, 60% gold proper, 2% placer), but only 149 are licensed or in commercial development.[3]

The total gold resources are estimated at 9,200 tonnes, whilst reserves are at 2,200 tonnes. At current production rates, these will last approximately 19 to 80 years.

The majority of Kazakhstan's gold production comes from the processing of polymetallic and copper ores.

KazZinc (the only LBMA accredited refinery) is the largest gold producer in Kazakhstan, as a by-product of processing polymetallic ores. KazZinc's gold production was 348,000 oz in 2010 and 429,000 oz in 2011[4], which included production from the Vasilkovskoye open pit. It is rumoured that KazZinc will shortly sell its gold assets.

Kazakhmys plc (which is a FTSE 100 company) is the main copper producer in Kazakhstan, with a Boliden built refinery at Balkhash in Central Kazakhstan. Gold production from Kazakhmys Copper was 138,400 oz, grading 0.73 g/t in 2010, whilst Kazakhmys Gold produced 1,401,000 tonnes of ore, grading 1.25 g/t in 2010, and Gold doré production reached 43,100 oz in 2010[5]. It is rumoured that Kazakhmys also wishes to sell its gold assets.

The major gold deposits are located in the North, East and Central Kazakhstan, and are shown on the map below and on page 13.

The largest of Kazakhstan's open-pit gold deposits is the world-class Vasilkovskoye (near Kokshetau), which has been explored since the Soviet times and which was sought by all of Dominion Mining, Placer Dome, Barrick, LonMin, Resolute, Malaysian Mining, Teck-Cominco, Levayev and Gaydamak, but is now owned and operated by Altyntau Resources JSC, an affiliate of JSC KazZinc (itself now part of Glencore International Plc). A gold recovery plant of 8 mtpa was commissioned in May 2010.

Figure 1. Major and perspective gold deposits in Kazakhstan

1. http://www.akorda.kz
2. http://www.comprom.kz
3. According to Tau-Ken Samruk, which is the national holding company established in January 2009 at the initiative of the President of Kazakhstan, Nursultan Nazarbayev, to hold the Kazakh Government's stakes in some of the country's largest metals and mining companies. Tau-Ken Samruk is a subsidiary of the Samruk-Kazyna National Wealth Fund. In late 2009, Tau-Ken Samruk created a subsidiary, Tau-Ken Altyn LLP, for the exploration, development, treatment and refining of gold and silver.
4. http://www.kazzinc.com
5. Source: the corporate website of Kazakhmys plc, http://www.kazakhmys.com

The Bakyrchik deposit, now part of the Kyzyl Project, which also includes Bolshevik (Ust-Kamenogorsk, East Kazakhstan) is perhaps the largest in Kazakhstan, with some claiming it may have 20-30m ounces. Bakyrchik is now owned by Altynalmas Gold Ltd. (which is owned by Ivanhoe Mines and nominees of the Almex Group on a 50/50 basis).

> *"Kazakhstan's largest historical independent gold producer since 1929 has been the former State-owned Kazakhaltyn, which was bankrupted and privatised in 2003. It is located at Stepnogorsk, north of Astana and has three mines at Aksu, Bestobe and Zholymbet."*

Kazakhstan's largest historical independent gold producer since 1929 has been the former State-owned Kazakhaltyn, which was bankrupted and privatised in 2003. It is located at Stepnogorsk, north of Astana and has three mines at Aksu, Bestobe and Zholymbet. MMC Kazakhaltyn JSC was acquired by Polyus Gold OJSC when it took control of KazakhGold Plc from the Kazakh Assaubayev Family in August 2009. Current production is 95-100,000 oz per year from underground, open-pit and tailings. Polymetal OJSC (Nesis) bought the Varvarinskoye gold deposit (130 km from Kostanai) in 2009 from Orsu Metals Corporation. Gold production at Varvarinskoye began in December 2007, after the first project financing was raised for the gold sector from Investec, Nedbank and the South-African Export Credit Agency. By 2013, Polymetal intends to increase gold production to 5 tonnes per year[6]. Hambledon Mining plc (listed on AiM) owns the Sekisovskoye deposit near Ust Kamenogorsk, East Kazakhstan. Underground mining began in late 2011. Hambledon contracted to purchase Akmola Gold LLP (the former Teck-Cominco Company), which owns the Tellur and Stepok deposits, in September 2011, and hopes to complete the purchase shortly. Hambledon now has EBRD as an investor.

Central Asia Resources Limited (listed on the ASX) has five prospects in Kazakhstan (i.e. Dalabai, Altyntas, Bizhe, Kepken and Kengir) with a total resource of 1.28m oz of gold. Altynalmas JSC is the former national company, which after independence operated and managed all of the various gold mines and exploration areas (as the successor to KazZoloto, itself part of GlavAlmazZoloto). After Bakyrchik and Vasilkovskoye were taken away from it under the Kazhegeldin Government, it was left with the Akbakai Underground Gold Mine in the Zhambyl Oblast. It also acquired the nearby Svetinskoye, Beskempir and Kareera deposits. The Akbakai gold processing plant was upgraded in July 2011, utilising a US$50m facility from Eurasian Bank JSC, pursuant to the Government's Programme for the Industrial-Innovative Development of Kazakhstan for 2010-2014.

Impact of the Customs Union on Gold Sales in Kazakhstan

Between the period of July 1998, i.e. when the Presidential Decree *'On State Regulation of Relations Connected with Precious Metals and Precious Stones'* of 20 July 1995 that had the force of a law was abolished, and 1 January 2010, there was no regulation of gold sales and exports in Kazakhstan, domestic sales attracted VAT at the standard rate (now 12%), whereas export sales were zero-rated, and local refining at Ust-Kamenogorsk (LBMA accredited) or Kazakhmys' Balkhash refinery also bore VAT and was relatively expensive. There was little domestic market demand for gold; although since independence, the National Bank of the Republic of Kazakhstan (NBK) has been a regular purchaser (see below).

Unlike India, the Kazakhs have not, historically, been large believers in and consumers of gold, and gold does not have the same place in society, where reverence is still paid to the US dollar and cash is king.

Producers typically chose to export their concentrates or doré for final refining and sale, and then seek to claim a refund for their excess VAT inputs.

This began to change with the Customs Union of Russia, Kazakhstan and Belarus (CU) from 1 January 2010.

The CU countries adopted a package of regulations relating to the operation of the CU, which included a special resolution on common non-tariff regulation, introduced a single list of goods, the import of which to non-CU countries and the export of which from the CU to non-CU countries are subject to prohibitions and restrictions. Such goods include precious metals, such as gold, silver, platinum and platinum-group metals.

The application of the CU regulations on precious metals was postponed in Kazakhstan until 1 July 2011, and certain new regulations became effective only from January 2012.

Regulatory Novelties

To implement the CU restrictions, in July 2011, the President signed a Decree, introducing non-tariff regulation of precious metals, specifically:

(i) State control over the import from non-CU countries, and the export to such countries of gold and raw materials containing gold, to create incentives for the development of the domestic gold market and processing of gold in Kazakhstan, Russia and Belarus; and

(ii) A priority right of the State to purchase gold bullion designated for export, in order to increase the gold reserves of the NBK.

Export of Gold and Raw Materials Containing Gold

In August 2011, the Government adopted rules as to the export/import of gold (in all forms) to and from Kazakhstan, and to and from non-CU countries, as well as raw materials containing gold.

Currently, in order to export gold and raw materials containing gold to non-CU countries, an export licence should be obtained from the Industry Committee within MINT.

Location	Gold Deposits
North Kazakhstan	Vasilkovskoye, Varvarinskoye, Uzboi, Symbat, Komarovskoye, Elevatornoye, Akkarginskoye, Zhetygorinskoye
Central Kazakhstan	Aksu, Zholymbet, Bestobe, Maikain, Kvartsytovye Gorki, Ushoky, Yenbekshi, Pustynnoye
East Kazakhstan	Bakyrchik, Suzdalskoye, Sekosovskoye, Bolshevik, Vasiliyevskoye, Ridder-Sokolnoye, Zhanan, Akzhal, Kaskabulak
South Kazakhstan	Akbakai, Altyntas, Ddlabai, Aksakal-Beskempir, Mynaral, Zharkulak, Karamurun, Arkharly, Kumysty
West Kazakhstan	Yubelienoye

6. Source: http://www.newskaz.ru/economy/20100317/490895.html

An exporter of precious metals can only be a legal entity or individual entrepreneur: (i) which is registered in Kazakhstan; (ii) owns precious metals or has entered into an agency agreement with the owner of precious metals; and (iii) which is entitled to engage in transactions with precious metals, in accordance with the legislation of Kazakhstan. In addition, an exporter must be on a special registry of MINT.

The export of raw materials containing gold to non-CU countries is permitted only for the purpose of export or refining.

In order to increase utilisation of the existing refinery capacity (the LBMA accredited refinery of KazZinc/Glencore at Ust-Kamenogorsk and the Balkhash Refinery of Kazakhmys), an exporter of raw materials containing gold outside of the CU should, prior to exporting, obtain consent from MINT in the form of either an export opinion (for export) or refining opinion (for refining) that in Kazakhstan the commercial recovery of gold from raw materials or refining, respectively, is impossible or uneconomic. In order to obtain such an export or refining opinion, an exporter needs to make a filing with MINT. When issuing an export or refining opinion, MINT should consider the terms of the export contracts and applicable prices for refining provided by Kazakhstani refineries.

> *“If MINT comes to the conclusion that it is economically feasible to commercially recover gold from raw materials, and that there is capacity for the refining of the raw materials in Kazakhstan, it will issue an export/refining opinion that such raw materials may not be exported from Kazakhstan.”*

If MINT comes to the conclusion that it is economically feasible to commercially recover gold from raw materials, and that there is capacity for the refining of the raw materials in Kazakhstan, it will issue an export/refining opinion that such raw materials may not be exported from Kazakhstan. An exporter may appeal the export/refining opinion in a Kazakhstan court.

As noted, currently, KazZinc (part of Glencore International Plc) is the only company that can comply with the *London Good Delivery* LBMA international standard. Kazakhmys LLP also has refining capacities to produce gold bullions at its Balkhash Refinery, but only in accordance with Kazakhstani (GOST) standards. However, the NBK and the Government intend to encourage and cause the upgrade of Kazakhmys' refining capacities so that, within a few years, it will be the second certified enterprise that can produce gold in accordance with the *London Good Delivery* LBMA international standards. There has also been much talk of the Government/MINT sponsoring, and of Samruk financing, a new refinery.

The current tariffs for refining at Ust Kamenogorsk vary from US$0.22 to US$0.23 per gramme (100% advance payment), plus transportation and other costs (insurance) at US$0.0195 per gramme.

The Balkhash refinery tariffs for refining of doré to 99.9% gold are US$0.1 per gramme, excluding VAT.

The current political and commercial intent is to fully utilise the existing domestic refinery capacity, and if that is achieved, at current production rates, it should be possible for the foreseeable future for Kazakhstan to refine all of the gold that it produces.

This is not resource nationalism, but economic and commercial common sense, in that Kazakhstan had refineries that were underutilised, even though domestic costs are relatively low, and reflects Kazakhstan's push to move further downstream in the value chain.

The State's Priority Right to Purchase Gold Bullion

The State has a priority right to purchase gold bullion and other precious metals that are produced by subsoil users.

In order to export gold bullion from Kazakhstan to non-CU countries, an exporter should, therefore, apply for and obtain, apart from an export licence, as noted above, a decision of the NBK to waive the exercise of its priority right to purchase gold bullion. NBK has been vested with powers: (i) to decide on behalf of the State whether or not to exercise the State's priority right to purchase gold designated for export, which became effective from 8 January 2012; (ii) to control export transactions of second-tier banks (i.e. any bank below the NBK) with gold bullion; and (iii) to control the testing and sampling of alloys of gold and raw materials containing gold, which are exported/imported from or into Kazakhstan.

As a practical matter, firstly, suppliers submit to the NBK their forecasts for production and sales twice per year, for the first and second six months of a year.

Based on the forecasts for production, the situation in the monetary market and international financial market conditions, the NBK either approves the limit for the purchase of gold bullion through the exercise of the State's priority right for the coming six months or waives the priority right for the coming period, i.e. from one month to six months.

The NBK then determines the volume of gold bullion to be purchased from a particular supplier within the approved six-month limit of gold bullion purchases.

If the NBK decides to exercise the State's priority right, the NBK and the supplier enter into an agreement as to the terms of the sale and purchase of gold bullion, as well as sign a trade ticket (i.e. a contract passport) for a particular lot.

> *“In August 2011, the NBK stated that it intends to exercise the State's priority right to purchase all gold bullion, so that domestic producers who comply either with London Good Delivery or Kazakh standards will have a guaranteed customer of their products in the next few years[8]”*

The price of gold bullion offered for sale, and to be purchased by the NBK, should be set out in the local currency, tenge (KZT). The price depends on the weighted-average currency rate of the KZT to the US dollar as of the date preceding the transaction, as well as the average value of the morning and evening fixings of gold at the LBMA, averaged for the whole month of the delivery and with the discount to be calculated taking into account the following:

- Transportation and customs costs, as compared to the export of gold to international markets;
- Expenses as to the sterilisation of monetary overhang in the system;
- The bid offer spread; and
- A discount for quality of gold bullions that do not comply with the *London Good Delivery* standard.

It is not yet clear what is meant by the use of the phrase *'sterilisation of monetary overhang'* and what amount of expenses associated with such will be included in the discount. In order to support domestic local gold producers, the NBK, together with the Association of Mining and Metallurgical Companies, is considering possible advance payment schemes.

The waiver of the State's priority right may be issued by the NBK if it reaches its limit for the purchase of gold bullion or whenever it decides to waive the State's priority right for a certain period (i.e. from one month to six months), and the relevant decision should be published on the NBK's website.

7. For more information please refer to the NBK's website: www.nationalbank.kz

Role of the NBK on the Gold Market

The NBK is the central bank of Kazakhstan that is separate from the Government as the executive branch and reports to the President of Kazakhstan. The Chairman of the NBK (currently, Gregory Marchenko) is appointed by Decree of the President.

The NBK has been steadily accumulating gold and other precious metal assets as the following table shows[7]:

Year	Precious Metals
2007	US$1.812bn
2008	US$2.001bn
2009	US$2.501bn
2010	US$3.052bn
2011	US$4.151bn
1 March 2012	US$5.281bn

In August 2011, the NBK stated that it intends to exercise the State's priority right to purchase all gold bullion, so that domestic producers who comply either with London Good Delivery or Kazakh standards will have a guaranteed customer of their products in the next few years[8]. On 15 March 2012, the Chairman of the NBK[9] was quoted as saying that the NBK began exercising the priority right from November 2011 and, as a result, has already purchased around 20 tonnes of gold. This means that within the next two to three years, no gold bullion will likely be exported from Kazakhstan. Kazakhstan also has a National Oil Fund, which was created in 2000 as a stabilisation fund that is intended to accumulate windfall revenues from oil sales and to seek to ensure the economy will be stable against the price swings of oil. The assets of the National Oil Fund are monitored by the NBK. As of 1 February 2012, the assets of the National Oil Fund were US$45.5 billion.

New VAT Regime on Gold Sales

Historically, VAT was charged on domestic transactions in gold, but this was changed with effect from 1 January 2012.

Sales by gold producers of refined gold from raw materials of their own production to the NBK are now taxed at a zero rate of VAT, whilst sales to a buyer, other than the NBK, are exempt from VAT, provided that such gold is sold within Kazakhstan.

Conclusion

Raw materials containing gold can now be exported only for the purposes of export and refining, and only on the basis of a special opinion from MINT. Kazakhstan is taking all measures to upgrade and ensure the full utilisation of the existing refinery capacity at KazZinc and Kazakhmys, and if this is achieved, it is likely to result in Kazakhstan refining all of the gold it produces within the country for the foreseeable future.

Compliance with the procedure for the exercise of the State's priority right to purchase gold bullion will make the export of gold bullion a complex and lengthy process, if not almost impossible, at least within the next two to three years, and this is especially so considering the intention of the NBK to exercise the State's priority right to purchase all gold bullion produced in Kazakhstan for the next few years.

However, in general, these changes are positive and, particularly, the amendments to the Tax Code as to the elimination of tax barriers on trades with gold bullion within the country should help motivate domestic gold producers to further develop their production and the gold market in Kazakhstan.

8. NBK Pres Release No26 Of 2.3 August 2011
9. Online Conference on www.profinance.kz held on 15 March 2012

Michael E Wilson, Director, Michael Wilson & Partners, Ltd.

Prior to MWP, Michael was the founding partner of all of Baker & McKenzie's offices and its entire practice in Central Asia, and the Caucusus. He has more than 13 years of experience in London and Sydney, and has now practised in Central Asia, the Caucusus, Russia and the Ukraine for more than 17 years. He specialises in mergers and acquisitions, especially in the mining, and oil and gas sectors, as well as corporate, joint ventures, banking and project financing. He has structured, documented and advised on almost all of the major mining, oil and gas and natural resource transactions in Kazakhstan, Uzbekistan and the Central Asian Region to date, including Sukhoi Log, Lenzolotto, Aksu, Bestobe, Zholymbet, the Bakyrchik, Vasilkovskoye, Varvarinskoye, Zarmitan, Kumtor, Jeeroy, Taldy-Bulak, Amantaytau and Dagystau Goldfields Projects, and also further afield, namely the Mt. Morgan Gold Mine in Queensland, the Vatukoula Mine in Fiji, to name but a few. He is a Member of the Major Projects Association; Founding Member of the Business Lawyers Association of Kazakhstan; a Founding Member of the Foreign Investors Council under the President of the Republic of Kazakhstan, a Founder and the former Treasurer and Chairman of the European Business Association of Kazakhstan (1998 to 2004); Member of the American Chamber of Commerce in Kazakhstan.

Elena Lee, Senior Lawyer, Michael Wilson & Partners, Ltd.

Elena belongs to the MWP Banking & Finance Group that works extensively with financing and securities, project financing, credit financing and loans, mergers & acquisitions, and issues related to Islamic banking. Elena specialises in Capital Markets, Banking and Finance, Corporate, Project and Corporate Finance, and Currency Issues. Her legal expertise in the sector lies in Mining, Energy and Commodities Trading, Commodity Derivatives and Metal Trading Activities, securitisation opportunities and potential leasing structures for rolling stock, various derivative products. She qualified as a lawyer in, and has been practicing since 2004, and subsequently won a scholarship, and obtained a Cum Laude Master's Degree (LL.M) in International Business Law from the Tilburg University, Netherlands in 2009, for outstanding academic performance.

Gold's negative relationship with the US dollar

By Fergal O'Connor, LBMA Bursar and Dr Brian Lucey, Trinity College Dublin

This article examines the negative relationship between gold and the US dollar. It considers the argument that a weaker dollar makes gold cheaper, increases demand for gold, which in turn drives up the price, giving gold and the dollar their negative relationship. The conclusion is that whilst this provides an explanation of the observed reality, there may be another reason.

Many academic studies as well as market and media reports refer to the negative relationship between gold and the US dollar. The argument goes that as gold is traded primarily in dollars, a weaker dollar makes gold cheaper for other nations to purchase and increases their demand for the yellow metal. This increase in foreign demand then drives up the dollar price of gold, giving gold and the dollar their negative relationship. While this argument gives us an explanation of the observed reality, there may be another reason.

Trade weighted

What needs to be highlighted about this finding is that gold has a negative relationship to the *trade-weighted value* of the dollar. This measures movements in the bilateral value of the dollar versus all its trading partners' currencies, weighted by the percentage of trade between the US and each partner, and creates an index showing whether the dollar is gaining or losing purchasing power on average versus its trading partners.

Seeing the negative relationship in these terms means that when other currencies are on average gaining value against the dollar, so is gold. One way to view this relationship is to see that gold acts like just another currency. When the dollar is losing value against the majority of currencies, it is also losing value against gold. The correlation would then be just that, a correlation and not indicating a causal relationship where the value of the dollar affects the value of gold.

Gold in other currencies

If this theory were correct, we could expect to see negative correlations between the sterling value of gold and the trade-weighted value of sterling, and the same for the yen, and Australian and Canadian dollars. This is because, on average, the value of gold expressed in a currency (e.g. the pound) would move with the value of other currencies expressed relative to the pound, their bilateral exchange rate. This would then give us a negative relationship between gold expressed in terms of pounds and the trade-weighted value of the pound.

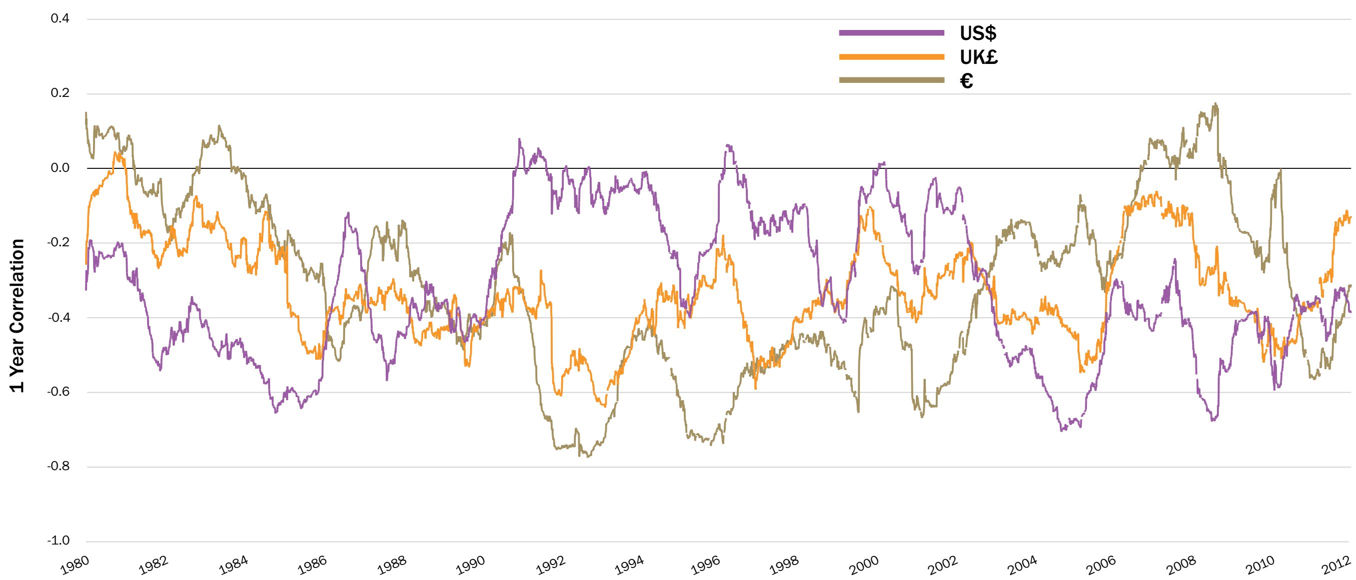
The chart below shows the one-year rolling correlation between the daily return on currencies' trade-weighted values and the daily return on gold in that currency. The data runs from January 1975 to February 2012 and comes from the Bank of England, with some calculations by the author.

For most of the time, the correlation between the returns on gold expressed in a currency and the returns on the trade-weighted value of that currency is negative, over 90% of the time for each currency. The occasional positive correlation between gold and a currency over such a long period can simply be put down to the law of averages. Gold and any currency are bound to move together sometimes.

And this finding is not specific to one-year correlations. If we instead look at 30-day correlations, between 80% and 90% are negative. And over the whole period, all the correlations were negative, with the US dollar being about average with a long-run correlation of -30%. The Australian dollar had the strongest long-run correlation at -40% and the Canadian dollar the weakest at 20%. So the returns on gold in a currency have a negative relationship with the currency's trade-weighted returns over short, medium and long horizons.

The significance of the negative relationship between gold and the value of the dollar then seems to be another pointer towards gold's role as an internationally traded currency, rather than a way of explaining movements in the value of gold expressed in dollars.

1 year correlation between a currencies trade weighted daily return and the return of gold in that currency




Your Global Partner
for precious metals
NADİR METAL RAFİNERİ
İstanbul
Refining, Recycling, Recovery and
Gold, Silver Bars & Coins in Gram Sizes
Au
Gold
196,97
Ag
Silver
107,87
Pt
Platinum
195,08
Pd
Palladium
106,42
LBMA
Istanbul Gold Exchange
DMCC
DUBAI MULTI COMMODITIES CENTRE
THE SILVER INSTITUTE
A Worldwide Association of Silver
Miners, Refiners, Fabricators & Manufacturers
www.nadirmetal.com.tr
ISTANBUL / TURKIYE

The conference by industry for the industry

LBMA Precious Metals Conference 2012
In Association with the LPPM

11-13 November
Grand Hyatt Hotel
Hong Kong

Why You Should Attend This Conference

Senior representatives of all sectors of the precious metals markets will be in attendance at the LBMA (LPPM) Precious Metals Conference, the premier event in the industry calendar. Now in its 13th year, the LBMA Conference adds insight into the vital issues affecting the precious metals markets.

Central Bankers... Dealers... Producers... Fabricators... Refiners... Brokers... Analysts... Marketers. There's a place for all market players at the LBMA (LPPM) Conference. Make sure to reserve yours.

The London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Tel: +44 20 7796 3067

www.lbma.org.uk
conference@lbma.org.uk

There's a place for all market players at the LBMA (LPPM) Conference – Registration opens in July




Regulation Update

By Ruth Crowell, Commercial Director, LBMA

LBMA Responsible Gold Forum

1 May, Westin-Paris Vendome Hotel

The LBMA invites industry and all Members of the OECD Working Group on Gold to a Forum on 1 May to discuss implementation of the LBMA Responsible Gold Guidance and the OECD Due Diligence Guidance. The meeting is aimed at establishing a dialogue with all players in the Working Group on Gold. Topics to be addressed will include how industry initiatives work together, the role of the OECD Institutionalised Mechanism and formalisation of artisanal mining. Programme highlights include speeches from the LBMA, World Gold Council, Responsible Jewellery Council, the OECD World Bank, Fairtrade & Fairmining amongst others. Any refiners, LBMA Members or OECD stakeholders wishing to attend any of these events should contact the LBMA Executive (ruth.crowell@lbma.org.uk) without delay.

OECD Meeting

2-3 May, OECD Conference Centre

The OECD is holding its Implementation Meeting for the OECD Due Diligence Guidance during the period 2-3 May. This meeting will decide what role the OECD's proposed Institutional Mechanism will take as well as generally to discuss implementation. The LBMA encourages Members and Associates to take part in the OECD Gold meetings to ensure representation from the gold industry.

Supply Chain Regulation Update

SEC Announces Delay and "Phased-In" Approach

While the final SEC rules are still to be issued, an update was issued in March. Commissioner Mary Shapiro of the SEC announced on 7 March that the SEC will have a phased-in approach. "We will have a phase-in period, I don't know how long, [but] that will… give sufficient time for some of the supply chain due diligence mechanisms to be developed and put in place." This will allow refiners and all members of the supply chain to get up to speed in an efficient yet feasible timescale.

LBMA Membership Seminars – April & May 2012

There is no doubt that regulation continues to be the hot topic in the bullion market. To help members understand the impact on their businesses of current and future regulatory developments, stemming from both US and EU regulators, the Executive has organised three seminars in April and May. For the two events in London described to the right, attendance is limited to representatives of Members, Associates and invited guests.

Membership Regulation Seminar I: US Dodd Frank & EMIR

24 April	Armourers Hall, London
13:00	The Potential Impact of the Dodd Frank Act *Jeff Daniel & Marvin Goldstein, Stroock & Stroock & Lavan LLP*
14:30	The Potential Impact of EMIR *Jonathan Melrose and Penny Miller, Simmons & Simmons*

Membership Regulation Seminar II: Basel III & Gold Due Diligence

15 May	14:00-16:00, Armours Hall, London
14:00	Basel III & Liquidity *Natalie Dempster, WGC*
15:30	LBMA Responsible Gold *Ruth Crowell, LBMA*

Any members or associates wishing to attend any of these events should contact the LBMA Executive (**ruth.crowell@lbma.org.uk**) without delay.

DIARY OF EVENTS 2012

APRIL

24
LBMA Membership Regulation Seminar I
US Dodd Frank & EMIR
Armourers Hall
London, UK
www.lbma.org.uk

29-30
Dubai Precious Metals Conference 2012
Dubai, UAE
www.dmcc.ae

MAY

1
LBMA Responsible Gold Forum 2012
Westin-Paris Vendome Hotel
Paris, France
www.lbma.org.uk

2-3
OECD Forum: Due Diligence in the Gold Supply Chain
OECD Conference Centre
Paris, France
www.oecd.org

14-16
Annual International Gold Symposium
Westin Lima Hotel & Convention Center
Lima, Peru
www.simposium-internacional-oro.snmpe.org.pe

14-18
LPPM Platinum Week
London, England
www.lppm.com

15
LBMA Membership Regulation Seminar II
Basel III & Gold Due Diligence
Armourers Hall
London, UK
www.lbma.org.uk

17-19
World Mining Investment Congress
London, UK
sarah.pegden@terrapinn.com
www.terrapinn.com

JUNE

9-12
IPMI Conference
JW Marriott, Las Vegas
www.ipmi.org

25-27
2012 Hong Kong Gold Investment Forum
Renaissance Harbour Hotel, Hong Kong, China
www.hkgoldinvestmentforum.com

AUGUST

6-8
Diggers & Dealers Forum 2012
Kalgoorlie, Australia
www.diggersndealers.com.au

24-26
India International Gold Convention 2012
HICC Novotel, Hyderabad, India
www.goldconvention.in

SEPTEMBER

9-12
Denver Gold Forum 2012
Hyatt Regency, Denver, CO
www.denvergold.org

18-21
International Platinum Conference
Sun City, South Africa
www.platinum.org.za

OCTOBER

25-26
The Silver Summit
Spokane, USA
www.cambridgehouse.com

NOVEMBER

11-13
LBMA (LPPM) Precious Metals Conference
Grand Hyatt Hotel
Hong Kong, China
www.lbma.org.uk

DECEMBER

10
LBMA Silver Anniversary Dinner
(For Members, Associates and invited guests)
Mansion House
London, UK
www.lbma.org.uk

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Ordinary Members

On 8 February, 2012, Zürcher Kantonalbank of Switzerland was reclassified from an Associate to an Ordinary Member.

On 27 February, 2012, Malca-Amit Commodities Ltd of Hong Kong was admitted as an Ordinary Member.

Associates

On 2 February, 2012 Clariden Leu tendered its resignation as an Associate due to its merger with Credit Suisse.

On 28 February, 2012 Comdaq Metals Ltd tendered its resignation as an Associate.

These changes brought the membership to a total of 135 companies, comprised of 64 Members (of which 11 are Market Makers), 67 Associates and 4 Affiliate Members.

GOOD DELIVERY LIST

PX Précinox SA of Switzerland was added to the Gold List on 24 January, 2012.

There are currently 63 refiners listed on the Gold Good Delivery List and 72 refiners on the Silver Good Delivery List.

COMMITTEES

Management

The Committee met in February – its final meeting at the Basinghall Street office, which the LBMA moved into in 2002 – and in March, it held its first meeting at the LBMA's new offices in the Royal Exchange Buildings (see below). The Committee was pleased to note that the LBMA's relocation had been completed under budget. The Committee also agreed, with the approval of LBMA members, to carry out a confidential survey of gold trading turnover in the Loco London Market on a quarterly basis.

At the March meeting, it was noted that Clive Turner, one of the five market-maker representatives on the Management Committee, would be resigning from the Committee as a result of his departure from JP Morgan. The Committee decided that rather than it co-opting a new member, the Market Makers would be invited to put forward nominations for election at the AGM in June.

Regulatory Affairs

The RAC met in February and early April to discuss a variety of regulatory issues. These included the LBMA Responsible Gold Guidance as well as the LBMA's work within the OECD Working Group on Conflict Gold. The RAC also reviewed the LBMA's current contacts with regulators, with a view to improving communication between the LBMA and regulators within the UK, EU and US. The Committee also welcomed new members Mehdi Barkhordar (PAMP), Neal Davies (Sumitomo Corporation Global Commodities Limited), Larry Drummond (Metalor) and Graham Jelf (Standard Chartered Bank). To assist Members in understanding the impact of current and forthcoming US and EU regulation on the bullion market, the RAC is arranging a series of Regulatory Seminars – see Regulation Update on page 19 for details.

Physical

In addition to its core activity of monitoring applications for Good Delivery accreditation and the proactive monitoring of listed refiners, the Physical Committee is responsible for a number of topics connected with vault operations in the London market. Recently, these have included:

- A new version of the visual guide to good delivery bars (which will help refiners to understand what is acceptable to the London vaults in relation to the physical imperfections in good delivery bars)
- The development of a scheme for accrediting vault staff
- The possible impact on inter-vault transfers during the London Olympics.

Referees

The quarterly meeting of the LBMA Good Delivery referees was held in London in March. A wide range of technical matters were covered, including the recently completed proficiency testing exercise for gold fire assayers. The draft report produced was discussed at length and will allow FAPAS (which is responsible for compiling and analysing the data) to produce the final report for distribution to participants by the end of April.

Public Affairs

At this time of year, the PAC's agenda is almost totally devoted to the development of the programme for the annual conference in Hong Kong, which this year will again be held in association with the LPPM. A large number of potential speakers and topics have already been considered and in some cases agreed.

The LBMA have, for a number of years now, set aside for charitable purposes, 50% of the money generated from fines levied on GOFO and SIFO contributors who fail to contribute rates more than three times in a calendar month. Last year the LBMA made a donation to the Red Cross Fund for the Japan Tsunami and charities who have benefitted in previous years include the St Mungo's organisation, Kids Get Going and Cancer Research. The Committee are considering which charities will benefit this year from the LBMA charitable fund and any suggestions from members would be welcomed.

Membership

There have been a number of changes in the make-up of the Membership Committee recently. These resulted from the move of Peter Roberts of Mitsubishi to the Finance Committee and the resignation of Paul Merrick, who has chaired the Committee since 2007, on his departure from Credit Agricole. The LBMA is greatly indebted to Paul for his exemplary and conscientious chairmanship of the Membership Committee during the past five years.

In response to the announcement of a vacancy on the Committee in the last issue of the Alchemist, a record 11 candidates put their names forward. The Management Committee decided to make three appointments to the Committee, thus increasing numbers by one, because of its perceived importance, not only in making decisions about membership applications, but in giving advice on a wide range of issues related to membership. The new members are Bob Davies (Toronto Dominion), Nick Frappell (Mitsui) and Sunil Kashyap (Scotia-Mocatta). At its meeting in early March, the Committee elected Michael Ludwig of Standard Chartered as its new chairman.

One of the important issues now being discussed by the Committee is the possible reclassification of Associates as full members. Some Associates have expressed an interest in playing a fuller role in the LBMA, but this is a complex question because of a number of factors, such as the requirements imposed by the LBMA's Articles in relation to Membership and Associateship, the sponsorship system and the benefits of full membership. This is likely to be an important topic during the Committee's discussions in the coming months.

Finance

The Committee met in March with the main item on the agenda being the consideration of the annual accounts for 2011, which after minor modifications were recommended to the Management Committee. The committee noted the resignation of Alan Wallis as a consequence of Comdaq's decision to resign from the LBMA.

Committee Vacancy

There is a vacancy on the Finance Committee. Anyone interested in applying should send a brief statement of their market experience to the Chief Executive (stewart.murray@lbma.org.uk). It is not essential for candidates to have accounting qualifications, but if they have relevant accounting experience, they should indicate this in their application.

Annual General Meeting

The 2012 LBMA Annual General Meeting will take place at Armourers' Hall, Coleman Street in the City of London at 5:30 pm on 20 June. Any representatives of Members and Associates who wish to attend will be most welcome. The past year has been an exceptionally busy one for the LBMA and the reports from the

Chairman and the chairs of the various subcommittees are the ideal way to get up to speed with what the Association has been doing.

In addition to the usual formal business of the AGM, the meeting will be asked to approve a number of substantive changes to the LBMA's articles. Only the designated contacts at each member company or their authorised alternates can vote at the AGM. The formal papers calling the meeting together with nomination forms for the Management Committee election will be circulated to them on 22 May. Other staff of companies within the membership who wish to attend are asked to inform the Executive by 19 June.

There will be an informal drinks reception following the meeting, which will provide a great opportunity to meet other members of the market. As in the past two years, this will be held in the Telegraph pub, commencing at around 6:30 pm. There is no need to register for the reception.

Membership Survey
At the request of the Management Committee, the Executive will shortly be carrying out a survey to find out the views of Members and Associates on two important questions, namely what should be the focus of the LBMA's development over the next five to 10 years? And is the LBMA giving value for money? It is not intended to send a questionnaire to all companies within the membership as has been done in the past, but instead to target leading decision-makers within membership companies. But the Executive would welcome suggestions and input from anyone within the membership (or even from outside it) who has strong views about where the Association should be headed. If you have, please do not hesitate to send them to me.

Executive Meetings and Travel
In March, the Chief Executive took part in a meeting in Brussels organised by the EPMF, which was attended by a number of associations representing the precious metals businesses in Europe and North America. All participants agreed that it would be useful to hold such meetings on an approximately annual basis to allow an exchange of information and avoid wasteful duplication of effort.

Ruth Crowell (the LBMA's Commercial Director) has played an important role during the past year in assisting the OECD to develop its guidance on gold by co-chairing the committee responsible for this work. Ruth is of course also the secretary of the LBMA's regulatory affairs committee, which has been heavily involved in developing the LBMA's own Responsible Gold Guidance. In order to explain the vital role that the LBMA guidance will play in ensuring that all good delivery gold refiners are totally conflict free, Ruth has made presentations at a number of events, including the EICC Stakeholders meeting in February, a joint seminar with the Responsible Jewellery Council at the Basle Fair in early March and a Canadian Government Roundtable on Conflict Minerals in Ottawa at the end of March.

In mid-April, the Chief Executive visited New York and Washington accompanied by Ruth Crowell and Jeremy Charles, the previous LBMA chairman, in order to meet a number of member companies and governmental organisations. The purpose of the visit was twofold: to provide a clear picture to regulators of the LBMA's role, above all in relation to its responsible gold guidance, and to collect information about future market and regulatory developments affecting precious metals.

LBMA Staff
We are pleased to announce the appointment recently of two new members of staff, coincidentally both of whom previously worked at the Bank of England. Aelred Connelly, who has been on secondment to the LBMA from the Bank during the past six months, takes over the role of PR Officer. Emma Attridge, who did a short stint at the LBMA last year while employed at the Bank, will join us as our Office Administrator at the beginning of May, taking over from Sophie Bialek who has performed this role on a temporary basis for the past six months.

New LBMA Offices
Over the weekend of 24 March, the LBMA relocated to bright new offices on the fourth floor of the Royal Exchange Buildings, which are situated very close to Bank underground station and just a stone's throw from the Bank of England. As well as providing more spacious accommodation for staff, the new office has much improved facilities for members and others visiting the LBMA, including a larger boardroom and an additional meeting room, which has already started to be used for private discussions between committee members. Fortunately, the phone number has not changed, but there is a new fax number as shown below.

London Bullion Market Association
1-2 Royal Exchange Buildings,
Royal Exchange,
London, EC3V 3LF
Tel: 020 7796 3067
Fax: 020 7283 0030

Market Moves

Christian Hein to Commerzbank
Christian Hein started his career in Institutional Portfolio Management at JP Morgan in 2002. Between 2003 and 2009 he worked for two German Landesbanks in Luxemburg trading Credit and Rates. In May 2010 he joined Commerzbank's subsidiary Erste Europäische Pfandbrief- und Kommunalkreditbank AG before moving to the Precious Metals desk in Luxembourg in March 2012. He will be taking over the Forward books on the Luxembourg desk.

Pauline Rutland joins Deutsche Bank
Pauline Rutland joins DB as part of their marketing team for precious metal clearing and vaulting.

The OTC Market Making System

Editorial comment, by Raymond Key, Global Head of Base and Precious Metals, Deutsche Bank

What does the future hold? Is it just me or is this less certain than ten years ago? The emergence of China has dominated commodity markets, whilst the financial crisis in 2008 will fundamentally change the way that financial and commodity products trade. In order to prepare for the future it is useful to understand the history (where we have come from) and to develop a strategy for assessing the future (where we are going).

With all of these dramatic changes, many of us are contemplating the future direction of the London bullion OTC market, which like so many markets, is undergoing tremendous change. I would like to focus this article on the OTC Market Making system, its structure, role and future.

I am told the beginnings of market making date back to the 1970s where the Gold and Silver Fixing members, and a number of other banks quoted each other 4,000 ounces of gold and 10,000 ounces of silver. This classification became more formalised with the creation of the LBMA in 1987, and in 1988, 13 Market Makers (MMs) were admitted into membership of the LBMA.

The role of the Market Making system is to provide market participants comfort that there is a solid group of companies that will provide the consistent liquidity that is vital for any market. Even in modern times, who can you depend upon to quote you if an exchange goes down, if you have a volume you can't transact on an exchange or you require a specific date option or forward? The MMs are the back stop that enhance the London market's credibility.

Since the founding of market making, the bullion market has changed immensely. The OTC market has seen the decline and virtual elimination of producer hedging, the development of the physically backed ETF, and a market making role focused upon investor flows in a highly transparent market. It has in fact become a challenging time for MMs, putting their liquidity on the line and often questioning whether there is suitable reward.

It was with these challenges in mind that the MMs met in August 2010 to discuss their views on market making, their level of commitment, and its future direction. I was delighted when members agreed to recommit even though the new environment is a very difficult one in which to be a liquidity provider. In fact, the group agreed it is important that we demonstrate the major advantage we have over other venues such as ETFs and exchanges.

Let us not forget that being a MM is an acknowledgement that such an institution is a bullion market leader. As a result of the August 2010 meeting, in 2011 the MMs agreed to a minimum set of conditions to be eligible to belong to this prestigious group. These conditions included; the minimum size and tenor they would quote each other a two way bid and offer in spot, forwards, lease rate swaps and options during London hours. In addition, to maintain integrity and provide self governance, a complaints procedure was updated and agreed upon, with the LBMA taking the role of facilitator.

In my view, the new role of true MMs is very important. The leaders will aggregate all forms of liquidity and provide their clients directly (or through whatever portal that develops in the future) with the vital liquidity they require.

"In my view, the new role of true MMs is very important. The leaders will aggregate all forms of liquidity and provide their clients directly (or through whatever portal that develops in the future) with the vital liquidity they require."

Most market participants would acknowledge that risk oversight has increased dramatically over the last four years. This has evolved from the financial crisis, increased volatility and more regulatory intervention. I know from various conversations that the very fact that we have a group of MMs that will commit to providing each other liquidity gives various internal or external risk control groups significant comfort.

This liquidity creates the ability to move large amounts of risk when required. To put this into perspective, MMs can potentially liquidate over 1 million ounces of forwards or 500,000 ounces of option risk in gold in a single call out.

I sense many market participants may not fully understand what this means. This system allows MMs a mechanism where they can quote clients (producers, central banks, investors, and second tier banks) prices in large sizes of gold forwards and options. They do so in the knowledge that if required, they can exit a significant amount of that risk through the market making system. It also gives non-market making banks and intermediaries the comfort that they can support their client base in the knowledge they can pass risk easily to MM members.

People will argue that this system is not used much in spot and forwards given the liquid nature of the futures market and static nature of lease rates, but I would counter that it would be foolish to take this as given.

For the stability and future of the OTC bullion market I think this role remains essential.

For a full list of LBMA market makers please see: **http://www.lbma.org.uk/assocn/mrktmakers**

Raymond Key is currently Managing Director, Global Head of Base and Precious Metals trading at Deutsche Bank. Raymond has 17 years experience within the financial markets. During his career he has been involved in metals, bulks, interest rate and currency trading businesses. He began his career at Bankers Trust, which was then taken over by Deutsche bank in 1999. He then joined Morgan Stanley in 2002 within it's commodity trading division. In 2007 he rejoined Deutsche bank, and specifically that part of the business which is involved in trading and providing services to its clients across precious, base and minor metals as well as steel, iron ore and uranium. He was responsible for Deutsche's launch of the iron ore financial market in 2008. He is a member of the LBMA Management Committee and the LME Steel committee.

facing facts

Paul Burton,
Senior Equities Analyst
Thomson Reuters, GFMS

M&A in gold and silver

Within the gold and silver mining industries, growth through mergers and acquisitions (M&A) is a well used strategy to complement organic growth through exploration. Thus it is somewhat surprising that M&A activity in 2011 and the first quarter of 2012 year was relatively restrained, despite the continued pressure on gold producers to grow given the limited exploration success of recent years and with conditions perfect for acquisitions for most of 2011. The soaring gold price meant 'windfall' profits, and hence healthy cash margins, for the gold producers, while many gold developers' shares underperformed, often losing market value and making them cheap targets.

This article reviews some of the most significant corporate moves over the past year or so.

Gold

In the gold mining industry, corporate M&A activity in 2011 featured a significant diversification move by a gold major as the standout deal of the year along with some regional consolidation moves, which rationalised project ownership in Nevada, Colombia, Australia and Ghana, amongst other areas.
The most significant deal of the year was Barrick Gold's acquisition of Equinox Minerals, not just because at C$7 billion in cash it represented the largest deal in the gold industry, but also because it saw a major gold producer make an acquisition outside of its normal sphere of influence and diversify into mainstream copper production. Although Barrick sells a considerable tonnage of copper by-product from a number of its mines each year, its move to secure a primary copper producer caused some consternation amongst shareholders.

Early in 2011, the Brazilian resources group, EBX, took over Colombian gold developer, Ventana Gold, for US$1.5 billion. Elsewhere in Colombia, Gran Columbia Gold and Medoro Resources combined in an all-share deal that added 6.6 Moz of gold and 37 Moz of silver in open-pit resources at Marmato to Gran Colombia's existing underground production.

Meanwhile, US major, Newmont Mining, paid US$2.3 billion in April for Fronteer Gold, giving the major an additional 4.2 Moz of Measured and Indicated resources close to its core Carlin operations in Nevada. And another major gold producer, OJSC Polyus Gold, was the subject of a reverse takeover by KazakhGold to form Polyus Gold International with a London main board listing.

In Australia, Conquest Mining and Catalpa Resources merged to form Evolution Mining, and Focus Minerals completed its takeover of Crescent Gold. Another Australian, Adamus Resources Ltd, was acquired by Endeavour Mining Corp.

Xstrata Copper and Goldcorp Inc agreed an exclusive option to acquire Yamana Gold's 12.5% interest in the Agua Rica project, in Argentina, for US$110 million.

IAMGOLD Corp sold its 18.9% interest in the Tarkwa and Damang gold mines, in Ghana, to the majority owner, Gold Fields Ltd, for US$667 million.

Elsewhere, Franco Nevada combined with Gold Wheaton in a US$826 million deal; AuRico Gold completed its takeover of Northgate Minerals in a deal that valued the target at C$1.6 billion; Detour Gold Corp acquired its joint venture partner in the Detour Lake area, Trade Winds Ventures, and Agnico-Eagle Mines snapped up Grayd Resource Corp in a deal worth around C$255 million.

Early in 2012, McEwen Mining was formed by the combination of US Gold Corp and Minera Andes Inc, and Pan African Resources and Wits Gold have agreed to acquire Harmony's Evander gold mine.

Silver

Much of the corporate activity within the silver space in 2011 involved existing producers rationalising ownership of strategic assets.

Hecla Mining consolidated ownership of the San Juan Silver project at Creede, in Colorado, by acquiring the remaining 30% interest from a consortium of local owners. The transaction, valued at around US$34 million at the time, added a silver resource of approximately 37 Moz.

In April, Kinross Gold Corp consolidated its interest in the Kupol mine and the Kupol East-West exploration licences, in the Chukotka region of Russia, to 100% by acquiring the outstanding 25% held by a State agency in a cash deal worth US$335 million. In 2011, the mine produced 6.6 Moz of silver (100% basis) as well as significant amounts of gold. At the end of 2011, Kupol had reserves containing 37 Moz of silver.

Silver Standard Resources, meanwhile, embarked on a partial rationalisation of its assets by consolidating its majority interest in the San Luis project, in Peru, and disposing of the Bowdens project, in New South Wales.

At San Luis, Silver Standard acquired the 45% interest held by Esperanza Resources Corp in a cash (C$17 million) and shares (6.5 million Esperanza shares held by Silver Standard) deal worth C$27 million, plus a 1% NSR royalty. The project has silver reserves of almost 8 Moz and is projected to produce 1.9 Moz/y of silver for three and a half years. The company hopes to receive environmental approval in 2012 contingent upon which the mine could come into production in 2014.

Also in 2011, Silver Standard sold its Bowdens project to Kingsgate Consolidated Ltd for an aggregate consideration of US$83 million, comprising cash and shares. Kingsgate has identified an Indicated resource containing 61 Moz of silver, with Inferred adding 39 Moz. The Australian company is currently undertaking a feasibility study on the project for completion during the first half of 2012.

The largest M&A transaction involving silver was hatched in 2011, but only announced to the market early in 2012, and was completed at the end of March. Pan American Silver Corp has acquired Minefinders Corporation in a cash and share deal that valued the Mexican gold/silver producer at approximately US$1.5 billion.

Minefinders' principal asset is the Dolores gold/silver mine, in Mexico, which is expected to produce 75-80 koz of gold and 3.5-4.0 Moz of silver in 2012. At the end of 2010, Dolores contained Measured and Indicated resources of 2.6 Moz of gold and 140 Moz of silver. In addition, Minefinders has 6.2 Moz of silver in M&I resources at its La Bolsa project, also in Mexico.

Paul Burton
Senior Equities Analyst, Thomson Reuters GFMS.
Paul Burton graduated as a mining engineer from the Camborne School of Mines in 1975 and spent almost twenty years working in the South African gold mining industry before becoming editor of World Gold Analysts in 1996, a position he still holds. In 2008 he became Managing Director of GFM World Gold until the company was acquired by Thomson Reuters last year and is now Senior Equities Analyst, Thomson Reuters GFMS. He is an established speaker on the international conference scene and is Chairman of the FTSE Gold Mines Index Committee. He holds an MSc in Mineral Economics and an MBA from the University of the Witwatersrand.

The Alchemist is published quarterly by the LBMA.
For further information please contact Ruth Crowell,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

The Art of Precious Metal Transformation™

PAMP SA Switzerland - Precious Metals Refinery and Fabricator

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up of doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, **from 12.5-kilogram to 1-gram bars**, PAMP bars are accepted as **'Good Delivery'** by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM). PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold & Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only five **'Good Delivery' Referees** of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for **a variety of sophisticated precious metals products**, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set variations, or with partial or total gold plating.

PAMP
Produits Artistiques Metaux Precieux

LBMA
GOOD DELIVERY REFEREE

PAMP SA
CH-6874 Castel San Pietro, Switzerland
tel.: **+ 41 91 695 04 50** e-mail: **info@pamp.com**
fax: **+ 41 91 695 04 51** web: **www.pamp.com**

LPM
GOOD DELIVERY REFEREE

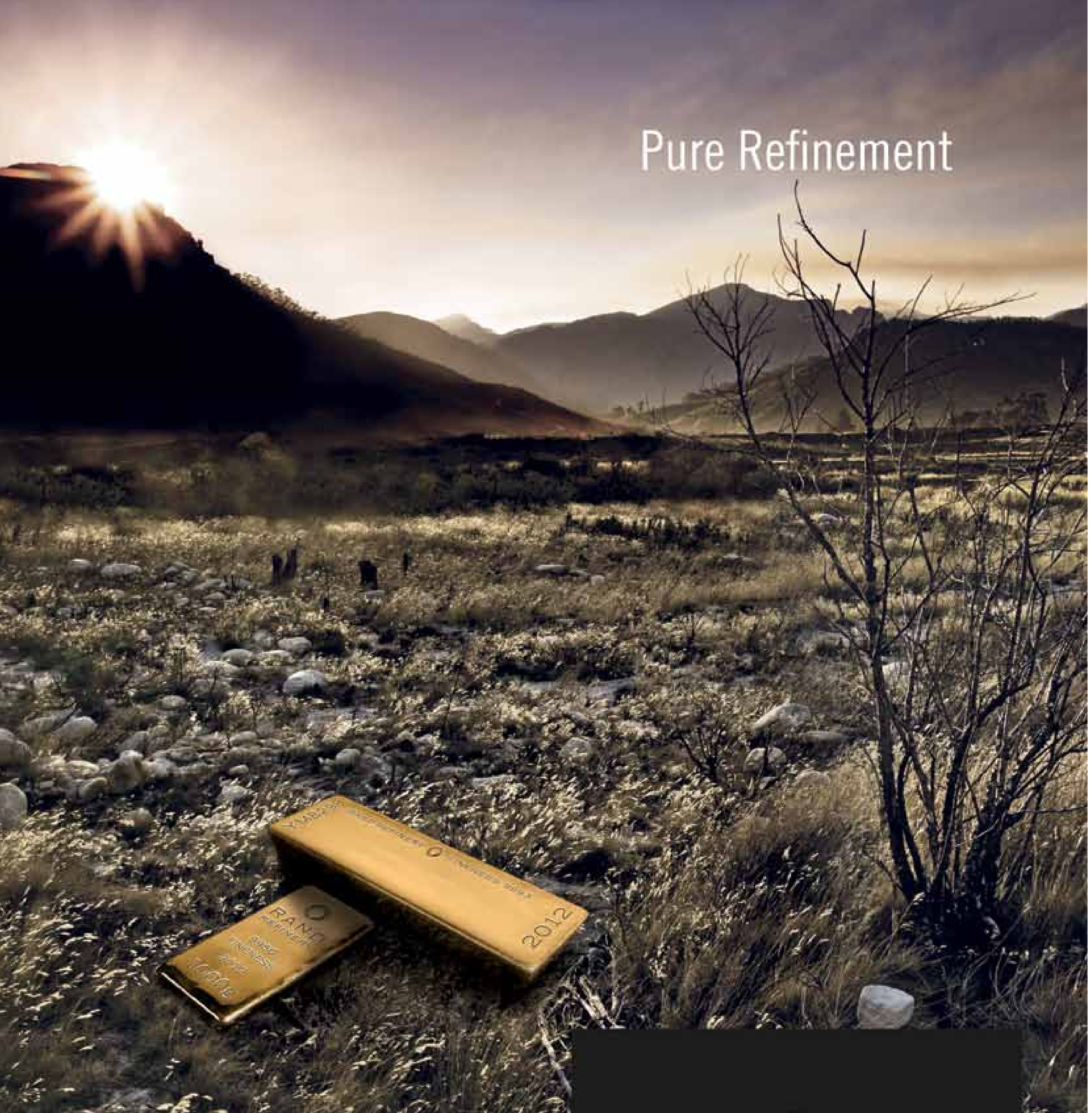
LBMA

Alchemist

The London Bullion Market Association ISSUE 67 July 2012

In this issue

Shown above are the London 2012 Olympic Gold, Silver and Bronze Medals, which were produced by The Royal Mint.



Rand Refinery is the world's largest single site gold refining and smelting complex. Our diverse range of industry leading services includes smelting, refining and fabrication. As the only LBMA referee in the southern hemisphere, we are able to deliver ethical, responsible and cost-effective solutions to a growing list of global clients. So whatever your gold related business needs are, you can rest assured that we have the experience and expertise required to turn your vision into reality.

RAND REFINERY

Our Vision: Providing access to wealth across the world, through sustainable integrated metals management

www.randrefinery.com

Gold Vault at the Hong Kong International Airport

By Sam Kwok, Director, HKIA Precious Metals Depository Ltd

The HKIA Precious Metals Depository Ltd opened in 2009 within the Hong Kong international airport. In this article Sam Kwok describes the main functions of the Depository and how it is playing a key role as a logistics hub and a gateway to the importation of precious metals into China.

China has overtaken South Africa to become the world's largest gold producer in recent years. But with the country also becoming the world's second-largest gold buyer, it has become clear that what it produces domestically simply could not satisfy all the demands of the Chinese gold investors. The gap is filled by imports from the rest of the world. In 2011, 427.8 tons of gold were imported into China, which marked a sharp increase from the 118.9 tons of 2010. Behind the figures and less obvious to the market watchers is the fact that a lot of the gold that is imported into China actually goes through Hong Kong, the financial and logistics hub that sits right on the doorstep of the world's most populous country. According to the Hong Kong Census and Statistics Department, in the first four months of 2012 alone, a total of 237.2 tons of gold came through Hong Kong. This suggests that the import of gold into China is still growing at a fast pace, and the flow of the metal through Hong Kong continues to gain momentum.

In fact, in the last 150 years, with the exception of the period when China was closed to the outside world because of its internal political upheavals, Hong Kong has always excelled in this role as an 'entrepot' to the mainland. Precious metals and precious stones have been finding their way into the hands of the Chinese buyers by making a port of call in Hong Kong before their final destinations. In the case of gold, because the metal is moved from one country to another mainly by air, a lot of the bullion imported into China is actually stored at the Hong Kong International Airport before it makes the last leg of its journey across the border into the China market.

With its 1.3 billion population, China's emergence as a major destination for gold imports has reinforced the traditional role of Hong Kong as a gateway to the second-largest economy in the world. As a transportation hub, the Hong Kong International Airport is a critical part of this 'entrepot' trade. Half of the world's population, including those of China and India, lives and can be reached within five hours if the metal is loaded on a plane and sent from the Hong Kong airport. This geographical advantage is augmented by the operational efficiencies of the airport itself, since it has been voted the 'Best Airport in the World' seven times in the last ten years. In 2011, 53.9 million passengers, as well as 3.9 tons of air cargo, made use of the Hong Kong International Airport. Gold bullion, along with silver and precious stones, is amongst the valuable cargo frequently handled at the airport.

But there are other reasons why gold bullion is coming through Hong Kong before it is sold to buyers in China. One of them is that Hong Kong

"With its 1.3 billion population, China's emergence as a major destination for gold imports has reinforced the traditional role of Hong Kong as a gateway to the second-largest economy in the world."

Figure 1. Aerial view of the Hong Kong International Airport (HKIA).

Figure 2. HKIA, the busiest international air cargo hub in the world.

Figure 3. The exterior view of Terminal 1, HKIA.

does not impose any control on the movements of gold bars in and out of the city; nor are there any taxes levied when moving the metal into Hong Kong, storing the bars there before they are sent to the buyers across the border. This gives Hong Kong a clear edge in its role as a logistics hub and a gateway to the import of precious metals into China. Other factors such as the financial infrastructure that has been put in place in Hong Kong over the years and support services such as the banking, insurance and legal systems that are familiar to financial institutions around the world are also important considerations when it comes to deciding where to store the gold bars.

To strengthen its role in the logistics flow of high-value goods, it was decided that the Hong Kong International Airport should build a state-of-the-art high-security vault for precious metals, particularly for gold bars. The facility, the Hong Kong International Airport Precious Metals Depository, was unveiled by the Financial Secretary of Hong Kong in September 2009. It is operated by a wholly owned subsidiary of the Hong Kong Airport Authority (rated AAA by Standard & Poor's), which in turn is wholly owned by the Hong Kong Government.

The Hong Kong International Airport Precious Metals Depository is located at a highly secure and yet convenient location within the airport to allow easy access by plane and by armoured trucks. Set up as a security company, the facility has been granted a Type 1 security licence by the Security and Guarding Services Industry Authority of Hong Kong. It is therefore subject to the licensing and regulatory requirements of high-security vaults in respect of operational controls and security procedures.

> *"Since it started offering its services three years ago, the Hong Kong International Airport Precious Metals Depository has focused on providing both long-term and transit storage for LBMA good delivery bars, as well as tael bars that are used in local delivery in the Hong Kong gold market."*

Since it started offering its services three years ago, the Hong Kong International Airport Precious Metals Depository has focused on providing both long-term and transit storage for LBMA good delivery bars, as well as tael bars that are used in local delivery in the Hong Kong gold market. Silver and other types of precious metals have also been stored at the facility. For LBMA good delivery bars in particular, but also for other precious metals, the Depository has served not only as a storage vault, but also as a physical settlement and delivery venue for traders from around the world. Commodity exchanges like the Hong Kong Mercantile Exchange have made the Depository at the airport the designated physical settlement venue for their gold contracts. Another group of gold investors that has sought out the facility to meet their long-term and often substantial storage requirements are the growing number of Exchange Traded Funds (ETF) that invest in gold. ETF managers and their metal providers have found it convenient as well as cost-effective to store, settle and create additional ETF units at the Depository. In fact, the Hong Kong International Airport Precious Metals Depository is among the few high-security vaults within the region that has the capacity to cater to the deep storage demands of ETF owners. The same rationale underlies the storage arrangements of government institutions, bullion banks, as well as refineries, family trusts, fund managers, etc. that have been making use of the facility at the Hong Kong airport.

Sam Kwok is Director of HKIA Precious Metals Depository Ltd

Sam Kwok joined the Hong Kong Airport Authority in 2002. The Airport Authority is responsible for the management of the Hong Kong International Airport, one of the busiest airports in the world. Prior to joining the Airport Authority, Mr. Kwok was the Finance Director of China Overseas Land & Investment Ltd, a company listed on the Hong Kong Stock Exchange, and has a wide range of business interests in the property and construction business of China. Mr. Kwok started his career as an investment banker.

New LBMA Offices

On the 24 March, the LBMA relocated to larger and more modern new offices on the fourth floor of the Royal Exchange Buildings, which are located in the heart of the City of London, very close to Bank underground station and just a stone's throw from the Bank of England.

The LBMA has recently taken on more staff to cope with an ever-expanding workload, particularly in relation to the numerous regulatory issues facing the bullion market. As well as providing more spacious accommodation for staff, the new office has much improved facilities for members and guests visiting the LBMA, including a larger boardroom for Committee Meetings and a reception area for visitors. There is also an additional meeting room, which has already proved very useful for Members and visitors alike.

A selection of photographs of the LBMA's new offices, including the reception area and boardroom. The reception area features an impressive new signage.

Your global partner for precious metals

Active in the physical and non-physical markets for almost a century, our award winning[1] dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

– Gold, silver, platinum and palladium
– 24h global service from hubs in Switzerland, the US, Singapore and the UK
– Physical precious metals custody in our Swiss vaults
– Coins: trading, handling and storage
– Structured products and tailor-made hedging solutions
– Full range of OTC derivatives
– Gold, Silver, Platinum, Palladium ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335
Stamford: +1-203-719 1178
Singapore:* +65-6495 3757
London:* +44-207-567 6752

*non physical only

Risk & Energy Risk COMMODITY RANKINGS 2012

Intended for investment professionals only

We will not rest UBS

www.ubs.com/preciousmetals

1. No.1 in Precious Metals Overall Dealers and No.1 for Research in Precious Metals, Risk and Energy Risk Commodity Rankings 2012. © UBS 2012. All rights reserved. 41687

The Goldsmiths' Company Gold: Power and Allure

4,500 years of gold treasures across Britain

Reviewed by Timothy Green, Author and Journalist

Tim Green here reviews the 'Gold: Power and Allure' Exhibition at the Goldsmiths' Hall. The Exhibition is a journey through time which powerfully tells the rich and previously untold story of the uses of gold in the UK over the last 4,500 years.

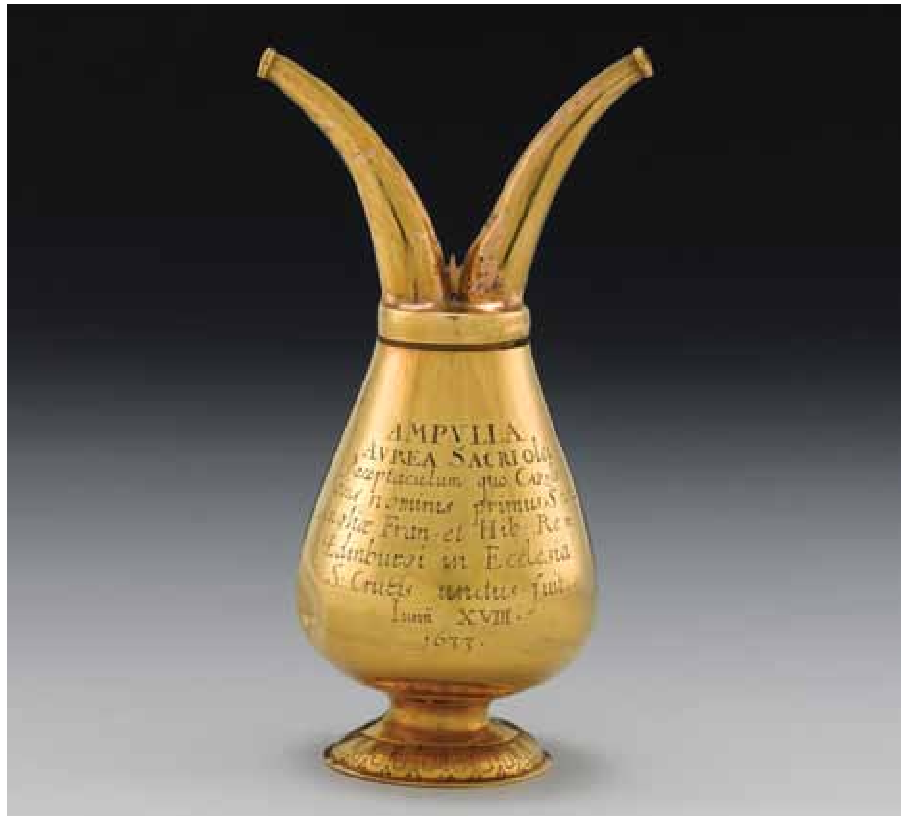


Figure 1. Gold Ampulla, 1633. © National Museums Scotland. Made to hold the sacred anointing oil for the coronation of Charles I at Holyrood House, Edinburgh on 18 June 1633. Measuring a mere 12.7cms high, this symbolic gold object is one of the highlights of the exhibition.

This exhibition, marking the Queen's Diamond Jubilee, is a walk through the history of gold on these islands, embracing more than 500 rarely seen items, from ancient Irish lunula and basket-shaped ornaments unearthed at Stonehenge, to sacred ampulla and royal coronets, alongside ornate jewellery, modern sporting trophies and a handkerchief of gold thread. Coin displays embrace every gold coin produced during the reign of each British monarch from Edward III in 1312 (save Edward V), with a reminder that, since 1282, The Goldsmiths' Company itself has been charged with testing the quality of the coinage at the annual Trial of the Pyx, still held today. The modern market is acknowledged with a gleaming 400 t.oz Good Delivery Bar, reminding us that the London Gold Market has developed a global brand.

As the curator, Dr Helen Clifford, explained: "The exhibition focuses for the first time on the British involvement with gold – as an exploitable ore, as a symbol of power, both spiritual and secular, as a medium of exchange and commerce, and as an inspiration of masterpieces of craftsmanship. The challenge has been to draw together the many strands that make a single precious metal so special. This is gold from the Bronze Age to modern City finance."

Dr Clifford led me to the opening display on mining in England and Wales. The oldest recorded workings are at Dolaucothi in central Wales, mined by the Romans and, erratically, ever since. Most of Britain's recorded production since 1861 of 130,000 t.oz is from this area, supplemented by small amounts from Kildonian in Scotland and the rivers around Falmouth, whence the largest nugget, weighing just 2 t.oz, and on display here, was found in 1808. However, it is the skill of goldsmiths and their sheer ingenuity in using the malleability and ductility of the metal through the millennia that carries this show. Moreover, the continuity of their craftsmanship is crucial. As Dr Clifford explained: "A comparison of the crescent lunula beaten out of sheet gold around 2,400 BC with a neckpiece made by Jacqueline Mina in 2009 not only reveals shared metal-working skills, but also millennia-leaping continuity in aesthetic sensibility."

> *"The exhibition focuses for the first time on the British involvement with gold – as an exploitable ore, as a symbol of power, both spiritual and secular, as a medium of exchange and commerce, and as an inspiration of masterpieces of craftsmanship."*

What struck me more than the brilliance of gold goblets or trophies was the sheer delicacy of many pieces. Bracelets and collars in abstract patterns of gold wire may evoke a spider in its web or a great spray of grasses and buttercups fabricated from gold wire and sheet gold demonstrate the goldsmith's versatility. I huddled, too, over the pattern book of Toye & Company, which made gold lace, braids and threads a century ago, each little spool carefully labelled 'Best quality silk' or 'Best quality cotton' to match the material they replicated. Such golden threads embroidered a page's jacket for the coronation of George IV and the epaulettes of naval officers. Not to forget a handkerchief of finest gold wire created this year by Giovanni Corraja and the elegant feathery sweep of a 19th-century gold quill, alongside a unique pair of solid gold spectacles from the 18th century loaned by the College of Optometrists.

> *After 1500, gold as a Christian symbol of the divine became grander, with ornate chalices and amullae containing holy anointing oil. Moreover, they began to be hallmarked by The Goldsmiths' Company.*

A dedicated display, 'The Gold of Antiquity', takes us back to the earliest working of gold. Excavations for new housing in Amesbury, near Stonehenge in 2002 revealed the burial place of two men thought to date to 2300 BC. Each had a pair of small gold basket-shaped ornaments laid near them. Admire, too, three distinctive early Bronze Age crescent moon-shaped pieces, or lunula, hammered out of gold between 2000-1500 BC and thought to have adorned the necks of tribal chieftains (see figure 2). Less than 200 lunulas are known and three of them may be seen at Goldsmiths' Hall. So are gold torcs (neck ornaments) from the later Bronze Age and Early Iron Age found at Ipswich, Snettisham, Newark and Stirling, revealing the skill of early goldsmiths. Dr Clifford notes: "It is somewhat ironic that the so-called 'Dark Ages' should have produced some of the finest gold work ever made in these islands. The achievements of Anglo-Saxon goldsmiths were of remarkable accomplishment and beauty… Experiments with enamelling and stone-setting can be seen in the early 7th-century gold and garnet pendant from Canterbury Museum."

Thereafter, fine objects are rarer and were mostly made for the Church in the form of chalices, shrines and reliquaries. They were usually of gold set with cabochon, such as a famous 'M'-shaped brooch from the mid14th century from New College, Oxford on display at Goldsmiths' Hall.

After 1500, gold as a Christian symbol of the divine became grander, with ornate chalices and amullae containing holy anointing oil. Moreover, they began to be hallmarked by The Goldsmiths' Company. The first surviving religious hallmarked gold is a chalice given by Bishop Fox in 1515 when he founded Corpus Christi College in Oxford. The exhibition displays a succession of such objects from a communion cup made of gold from Guinea (which became an important source of gold by the 16th century) to a handsome ampulla (see figure 1) used at the Scottish coronation of Charles I at Holyrood House, Edinburgh in 1633. The tradition continues to this day, with some notable recycling of gold. The chalice design for the Catholic cathedral in Liverpool in 1958 was made from donated wedding rings.

To mark the Queen's Diamond Jubilee, coronets and other items from the Royal Collections have been loaned. They include the coronet of George, Prince of Wales, created in 1902 for the coronation of his father, Edward VII. Royal duty was also often rewarded with gold cups, for example to the Duke of Norfolk in 1821 for his services as Earl Marshall, while the Duke of Ormonde & Ossory received a cup costing £230 for acting as Chief Butler for Ireland at banquets for the same event. Slightly more macabre is a gold ring taken from the finger of the dead Queen Elizabeth I in 1603.

Figure 2. The Irish Lunulla, c 2000-1,500 BC. © The Drapers' Company. An exciting example of early gold work featured in the exhibition is a magnificent lunulla dating from 2,000-1,500 BC, which was found in Northern Ireland then owned by the Worshipful Company of Drapers' in c.1845/6. These distinctive early Bronze-moon shaped pieces were hammered out of gold and thought to adorn the necks of tribal chieftans.

Figure 3. Claret Gold Jug by Martyn Pugh, 2008. © Private Collection. Made to commission for a client who wanted a solid gold claret jug. It is made of a new 99% gold, 1% titanium alloy, equating to 23.75 carats, which can be fashioned in a soft condition then hardened by heating.

> *To mark the Queen's Diamond Jubilee, coronets and other items from the Royal Collections have been loaned.*

After 1700, the new abundance of gold from discoveries in Brazil that more than doubled world production brought a flurry of lavish gold cups, dishes and ornaments for hallmarking at Goldsmiths' Hall. Gold trophies for horse racing abounded, with a range of little gold beakers as prizes at Chester Races, and two elegant teapots for the King's Prize at Leith Races in Scotland. Later, gold medals were struck for the Olympic Games, although they were only made of solid gold for the first four Games and can be seen here.

> *After 1700, the new abundance of gold from discoveries in Brazil that more than doubled world production brought a flurry of lavish gold cups, dishes and ornaments for hallmarking at Goldsmiths' Hall.*

Gold tableware also signalled power and wealth, as only the rich could afford gold rather than silver gilt. So we admire gold ice buckets from c.1680-90, owned by the Duchess of Marlborough, and a magnificent ewer and basin created by the goldsmith Pierre Platel in 1701-2 for William Cavendish, 1st Duke of Devonshire (see figure 4). Not to be outdone, the wealthy William

Figure 4. Gold Ewer and Basin, Pierre Platel, 1701-02. © The Devonshire Collection. Made for William Cavendish 1st Duke of Devonshire. The Ewer is of Helmet shape, the lower part of the body decorated with alternative flowers and scrolls, and engraved under the spout with the Devonshire coat of arms. The dish is oval in form with a single depression and the border is decorated with scrolls, escallops and acanthus foliage in bold relief. It is engraved in the centre with the same ducal arms as on the Ewer.

Figure 6. Pictured above is the 1912 Olympic Gold Medal.

Beckford affirmed his status with a gold teapot and toasting fork, which he took on his travels. This is a modern vogue, too: witness a laser-cut breadbasket and tongs by Grant Macdonald from the Downing Street Collection, a laser welded jug by Martyn Pugh (see figure 3) created in 2011 and a simple elegant Jubilee Gold Bowl by Michael Lloyd made for the Queen's Golden Jubilee in 2002.

> *Gold tableware also signalled power and wealth, as only the rich could afford gold rather than silver gilt.*

The common feature of articles made since Tudor times is a hallmark from Goldsmith's Hall, mandatory since the London Assay Office was established there in 1478. Appropriately, old touchstones and touch needles used for centuries to confirm the gold's fineness are on display. Alongside them are trial plates for the annual Trial of the Pyx (Latin for money box) to determine the fineness of coins. A unique collection of gold coins, ancient and modern, has been assembled for this exhibition. The central showcase starts with a Noble minted for Edward III and tested by The Goldsmiths' Company in 1312, and then continues with all its successors as official currency, 31 in all, to the present Queen (only Edward V ruled so briefly that no coin was struck). Here we see a likeness of all our rulers of the last 700 years (except for Edward V). Edward III's Noble shows him, sword and shield in hand, at sea on his flagship – a perfect snapshot in gold. Most significant are the Guinea, first struck in 1663, and the Sovereign of 1816, which became internationally accepted coins, making London the leading gold market for over 300 years, with the coins being ordered by the fledgling Bank of England (founded in 1694) from the Royal Mint. These two coins and the Bank were the foundation of the London Gold Market we know today.

British coins may have centre stage here, but beside them are some of the great coins of antiquity. A tiny gold coin stamped with a royal lion symbol by King Croesus of Lydia (modern Turkey) around 550 BC and a Stater of Philip II of Macedon, c.336 BC, lead the way. Next, admire the coins of great empires, a Roman Aureaus of Claudius 4-54 AD, a Solidus of Constantine the Great, 307-337 AD, and a Venetian Ducat, first minted in 1285, which endured until the fall of the Republic in 1797, weight and fineness unchanged, as Venice became the first international bullion market, a role taken over by London after 1700.

Figure 5. Necklace by Ernst Blyth, 1966. © The Goldsmiths' Company. 18 carat gold. The collar is drilled, and is typical of the very heavily textured jewellery that became popular in the early 1960s.

The achievement of the 'Gold: Power and Allure' exhibition is to encapsulate, visually, the story of gold through the last 4,500 years, from simple trinkets found near Stonehenge to today's handsome laser-cut jug or vase, and a coin from Croesus to a sovereign of Queen Elizabeth in 2012.

Timothy Green, Author and Journalist
Timothy Green has been writing about gold for over 40 years. His first book, The World of Gold, came out in l968 and was revised several times. He also wrote The Gold Companion: The A-Z of Mining, Marketing, Trading and Technology for the Swiss company MKS Finance SA. His latest book, The Ages of Gold, on the 6,000 years' history of the metal, was published in 2007 by GFMS, the precious metals research company, for whom he was also a consultant on world gold markets for three decades. In 2010, he wrote Building a Global Brand, The London Good Delivery List 1750-2010 for the LBMA.

The exhibition, sponsored by the World Gold Council, which runs until 28 July, is accompanied by the book Gold: Power and Allure, published by The Goldsmiths' Company and edited by Helen Clifford, the Curator. It contains 11 chapters by specialists on gold (including this reporter) covering Gold Sources and Exploitations; The Properties of Gold; Gold of the Ancients; Gold Coins, Their Symbolism and International Finance; and London – the World's Gold Market.

Price £10, available from The Goldsmiths' Company.

Continuously Cast Good Delivery Silver Bars

By Thomas Weiss, Director Sales & Precious Metals Services, Allgemeine Gold-und Silberscheideanstalt AG

In this article Thomas Weiss explains how Allgemeine Gold-und Silberscheideanstalt AG have drawn on existing experience and technology to develop a new technique to continuously cast Good Delivery silver bars. A first for the LBMA.

For more than 100 years, Allgemeine Gold-und Silberscheideanstalt has been refining silver from various secondary materials in the well-known jewellery city of Pforzheim in southern Germany. In the past, almost all of the recycled silver was used for the manufacture of Allgemeine's silver products, with the occasional surplus being sold in the form of grain.

With the substantial increase in silver prices in recent years, however, three tendencies became clear. Firstly, there was a steady increase in the amount of silver scrap available for refining, which led to Allgemeine increasing its refining capacity and production. At the same time, the higher price led to a fall in the consumption of some silver products, with a consequent fall in the demand for silver grain. Furthermore, with silver being increasingly seen as an affordable investment product, the rising market demand for London Good Delivery 1,000 troy ounce bars presented a challenge regarding the optimum method of producing these bars.

In Allgemeine's case, a solution had to be found for the efficient melting and casting of the silver crystals originating from the electrolytic refining process. Normally, Good Delivery bars are cast in open moulds, usually made of cast iron. With large-scale production, performing this operation manually is very labour-intensive. In addition, because of silver's tendency to absorb oxygen when molten, the final stages of solidification in open moulds often results in this oxygen being released with the formation of surface needles, which then have to be removed by grinding or wire brushing. Allgemeine developed the idea of using continuous casting to produce Good Delivery bars and thus obviate both the above-mentioned problems.

Figure 2. Cooling by water spray.

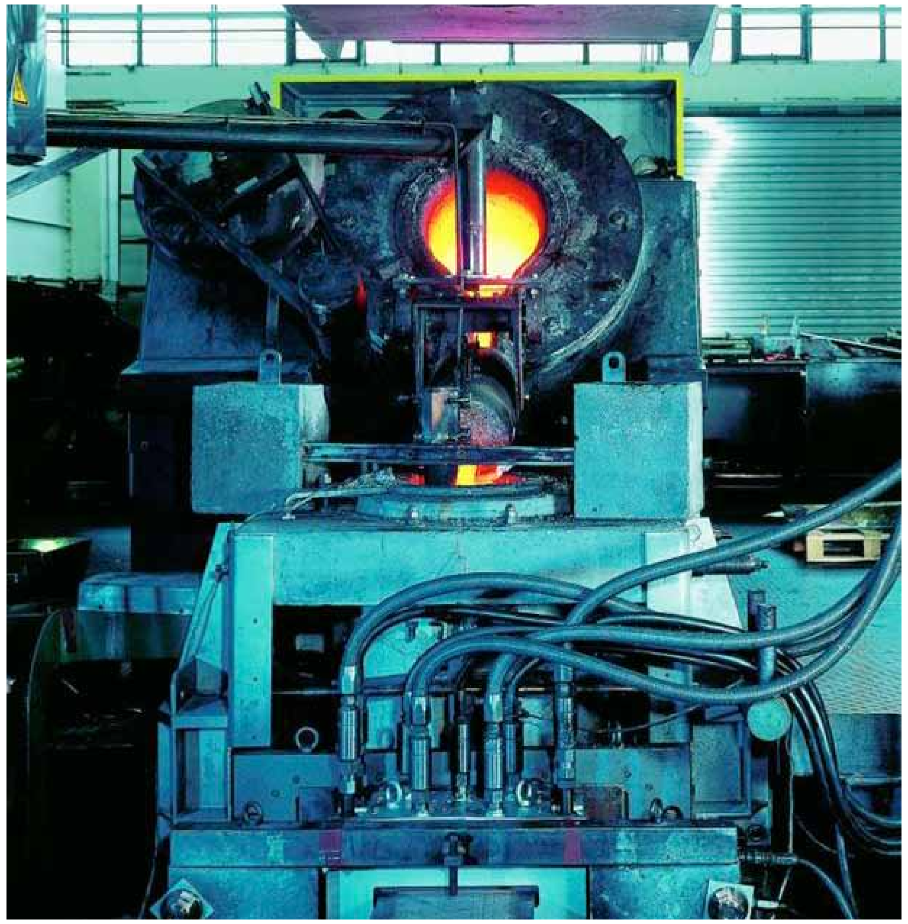


Figure 1. Continuous casting unit with pre-melting furnace.

> *"Allgemeine had experience of an extremely efficient continuous-casting facility, with machinery for cutting processes and an experienced and well-trained team of experts for the manufacturing of semi-finished products."*

In 2008, when Allgemeine was granted accreditation by the LBMA for its gold and silver bars, expensive manual casting was still used. Yet, as a large-scale manufacturer of silver products, Allgemeine had experience of an extremely efficient continuous-casting facility, with machinery for cutting processes and an experienced and well-trained team of experts for the manufacturing of semi-finished products. The decision was then made to use this kind of equipment for the manufacture of Good Delivery silver bars. The main stages in the process are described below.

Figure 3. Finished Allgemeine LBMA Good Delivery bar.

1 Electrolytically recycled silver crystals are pre-melted in a 400 kW induction furnace with a capacity of 500 kg. After homogenisation of the melted material, a sample is taken and analysed spectrographically to determine the contents of 25 possible impurities. Simultaneously, the oxygen content is measured. Within a few minutes, the exact composition and quality of the melt in the furnace is known.

Figure 4. Surface indentation resulting from the bar withdrawal system.

2 Transfer of the pre-melted material into inductive heated holding furnace and continuous casting in which the water-cooled 'mould' has the same cross-section as a Good Delivery. The furnace (see Figure 1) has a capacity of 1,100 kg and is stabilised at a temperature of 1,150°C. The casting is performed under steady conditions, the melted material is constantly fed in at a rate of 500 kg/hr.

The cast section is cooled by a water spray (see Figure 2). With a two- or three-shift system, this continuous-casting technology yields an output of 8 to 10 tonnes per day.

3 Sawing into bar lengths is carried out by means of a programmable metal saw.

4 In order to produce the undercut on the end surfaces and to ensure the rounding of the resulting edges (to ensure the safe handling in the vault), the final stage involves the treatment of the bars in a CNC-controlled milling-machine. As this machinery is used for this process only, the resulting scrap can be returned to the melting step.

5 Marking of the bars on the end surfaces is carried out using a programmable dot matrix engraving system, immediately after determining their weight. The finished bar (see Figure 3) benefits from having extremely flat surfaces, rounded edges and clear markings. The only minor deviation is on the bottom surface, which shows track-like indentations resulting from the apparatus used to withdraw the continuous bar from the casting furnace (see Figure 4). Following examination of sample bars by a panel of LBMA inspectors in London, the bars were accredited as Good Delivery by the LBMA on 15 June 2012.

> *"Following examination of sample bars by a panel of LBMA inspectors in London, the bars were accredited as Good Delivery by the LBMA on 15 June 2012."*

6 Overview

When compared to manual casting, this multi-level production mode seems to be rather complicated. The milling part is an additional step in the process and is what determines the overall capacity. Nevertheless, for Allgemeine, the continuous-casting technology is an efficient alternative for the manufacturing of bars. It fits in well with the skills and experience of its employees and the need to produce substantial amounts of silver bars for the market.

The system can be used both for the production of high-purity 999.9 silver or, by a calculated addition of copper, 999 fineness material can also be produced.

Thomas Weiss is Director of Sales & Precious Metals Services at Allgemeine Gold- und Silberscheideanstalt AG

As a business economist, Thomas has more than 15 years' experience in the precious metals markets. From 1999 until 2005, he was responsible for the precious metals trading department of the Pforzheim Sparkasse bank. In 2005, he joined Allgemeine as the head of Allgemeine's precious metals services & management, serving both internal customers, i.e. production units and their specific precious metals demand, and external clients on a global base. Thomas became Allgemeine's Director of Sales & Precious Metals Services in 2010 and is the contact for all LBMA-related issues within Allgemeine.

A Day in the Life of the WGC's Head of Technology

By Dr Trevor Keel, Head of Technology, World Gold Council

Dr Trevor Keel describes here the range of issues and tasks that he deals with in a typical day in his capacity as the Head of Technology at the World Gold Council.

'Diverse' is probably the best word I could use to describe my activities at the World Gold Council. As my title suggests, my interests lie in the use of gold in technical applications and at the moment, this really is a fascinating field to be working in. Let me explain why. Currently, approximately 450 tonnes of gold per year finds its way into technical applications. The majority of this is used in the electronics industry (for example, gold is found in your mobile phone, computer and even in your car's braking system), but recent advances in fields such as nanotechnology mean that gold's relevance is growing across many sectors of science such as catalysis, medicine and clean technologies.

So like many people, I start my day with a strong cup of tea and a glance at my emails. Frankly, I'm never quite sure what is going to appear in my inbox. I often get technical questions from people around the world who are working with gold; some of these I am able to answer directly, some not (but I generally know the person who can). I will also take a few minutes to check Gold Bulletin, the world's leading technical journal dedicated to gold science and technology. As the Editor-in-Chief, it is my role (with support from the editorial board and expert reviewers) to ensure the publication continues to highlight some of the world's leading research into gold, as it is this work which lays the foundation for future applications for the metal.

I generally have a handful of meetings in a day. Because I work with such a range of institutions and organisations worldwide, these can be via phone, video teleconference or face to face. Today, for example, I had an internal meeting with colleagues working in the jewellery sector. They are working on a new project which requires some technical input regarding how coloured gold is obtained. This was followed up with a call with colleagues at Nature Publishing Group, with whom we are in the process of setting up a collaboration.

I then deal with a media enquiry from a journalist; I provide him with some data and then follow up by talking him through it on the phone.

Figure 2. In 2011, over 120 tonnes of gold was used as bonding wire in electronic equipment ranging from mobile phone and computers to car braking systems.

> *"It is clear that gold's story is not just one of beautiful jewellery and shimmering vaults of bullion. Gold is hidden away in many everyday objects and devices we take for granted, quietly and effectively helping to connect the world."*

Gold and technology is a popular topic for the trade and consumer media, so I regularly deal with press enquiries and do media interviews. This particular journalist is writing about the future of gold in technology. It is a topic which I am asked about frequently, as everyone is eager to find out what the future holds. As I mentioned earlier, the emergence of nanotechnology has reinvigorated gold research and we are now beginning to see exciting progress being made in a range of challenging fields. It is straightforward to make gold into minute nanoparticles and these tiny particles (which are thousands of times smaller than the width of a human hair) display some fascinating properties. Indeed, nano-gold is to all intents and purposes a new material when compared to bulk gold. This fascinates many people and often makes the basis of a good story; I'm always delighted to provide technical input where necessary. As an added bonus, I often learn something new from these interactions. Recently, I was approached by a well-known popular science author regarding the use of gold in smoke detectors. This was something I had not heard about before, but with some digging and the help of a large smoke detector manufacturer, I was able to uncover that there is indeed a small quantity of gold in each unit. They say you learn something new every day...!

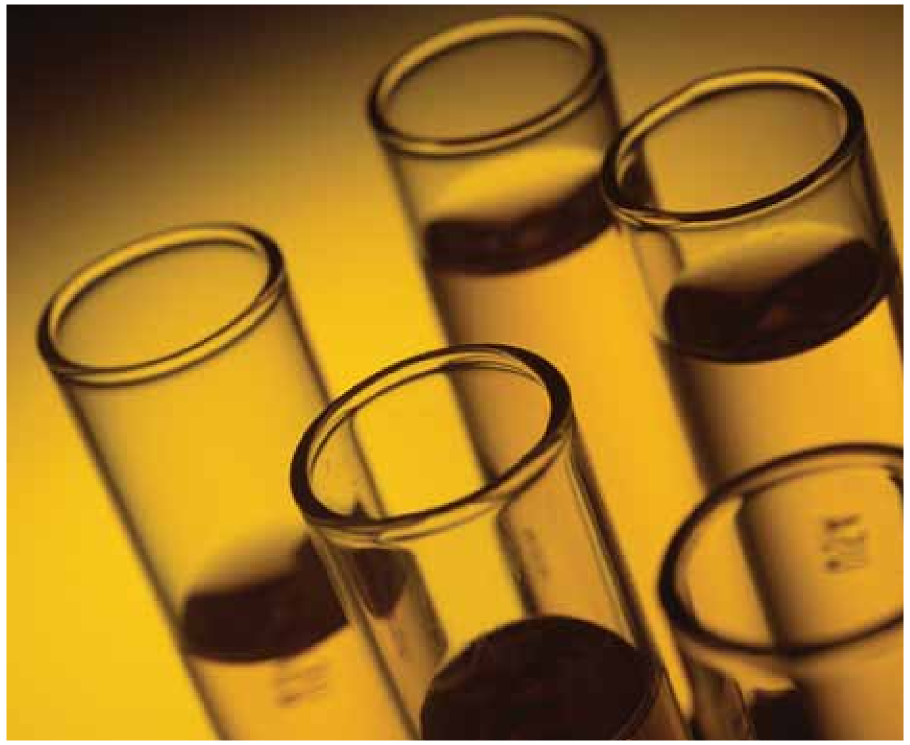


Figure 1. Recent years have seen an explosion of interest in the use of gold nanoparticles in research and development, and a number of new applications are just around the corner.

ALCHEMIST ISSUE SIXTY SEVEN

After some lunch with colleagues (and a long moan about the latest English football performance), I crack on with the next job of working on a book chapter I am writing with a colleague from South Africa. This is focusing on commercial applications of gold-based catalysts – another area currently experiencing an explosion of interest. Gold has found its way into a number of industrial processes and this is expected to grow in the coming years. The rest of my day is taken up with another aspect of my role – investments. The World Gold Council recognises that one of the most effective ways of accelerating the development of new technologies is to support the organisations that are involved in the work. We currently have equity investments in two clean technology companies and are looking for more opportunities. At present, I am analysing an exciting small company, again in the clean technology space.

It is clear that gold's story is not just one of beautiful jewellery and shimmering vaults of bullion. Gold is hidden away in many everyday objects and devices we take for granted, quietly and effectively helping to connect the world. Future technologies seem set to benefit from the properties of nano-gold, a material which can be seen as the very essence of sustainable value – small quantities of gold being used intelligently and efficiently helping to answer some of the world's biggest challenges. Communicating these stories is an important and enjoyable part of my job.

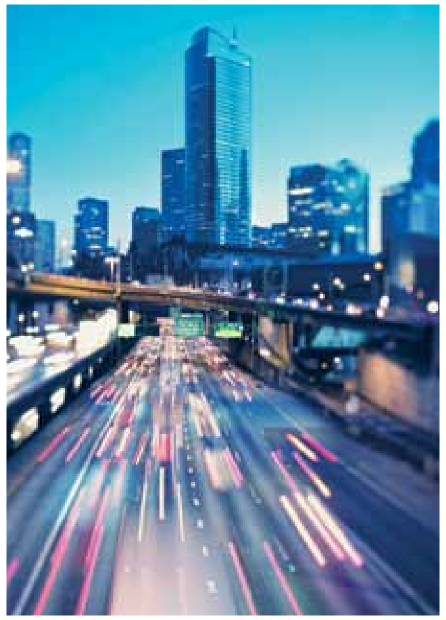


Figure 3. Gold has a role to play in many clean technologies of the future, including lowering automotive emissions and improving solar cell efficiencies.

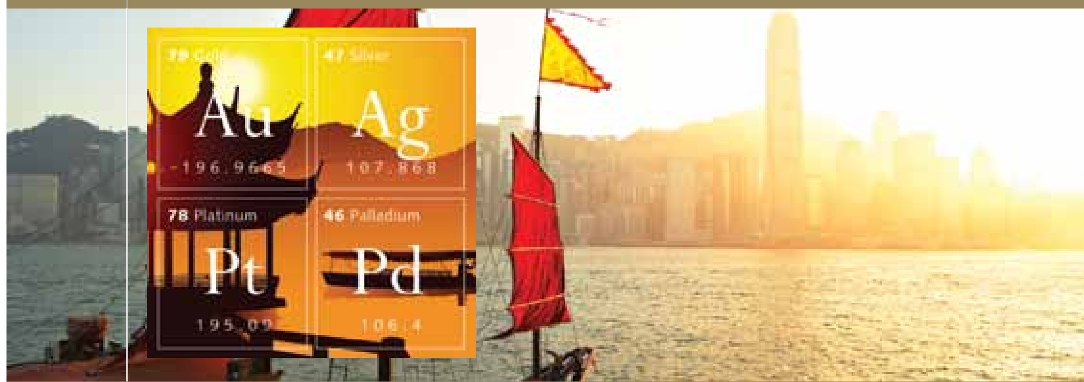
Dr Trevor Keel
Head of Technology
World Gold Council

Trevor is Head of the World Gold Council's Technology sector. He manages a range of research and marketing projects and has a particular interest in the use of gold in the fields of electronics, medicine/diagnostics, catalysis and nanotechnology.

Previously, Trevor was a principal chemist at the healthcare company GlaxoSmithKline and holds a PhD in pharmaceutical nanotechnology in addition to his degree in chemistry. He is also a chartered chemist.

The LBMA/LPPM Precious Metals Conference 2012

11-13 November
Grand Hyatt Hotel
Hong Kong



The London Bullion Market Association
1-2 Royal Exchange Buildings
London EC3V 3LF
t. +44 (0)20 7796 3067
f. +44 (0)20 7283 0030
conference@lbma.org.uk
www.lbma.org.uk

Why You Should Attend This Conference

An excellent programme of high quality speakers will be providing their unique insight into the major issues affecting the Precious Metals markets. Speaker highlights include Xie Duo, General Director of the People's Bank of China; Professor Yu Yongding, from the Institute of World Economics; Jamie Sokalsky, CEO of Barrick Gold Corporation and Marc Faber, editor and publisher of the "Gloom, Boom & Doom Report".

Central Bankers... Dealers... Producers... Fabricators... Refiners... Brokers... Analysts... Marketers. There's a place for all market players at the LBMA (LPPM) Conference. Make sure to reserve yours.

LBMA

LPPM LONDON PLATINUM & PALLADIUM MARKET

ALCHEMIST ISSUE SIXTY SEVEN

LBMA 25th Anniversary Commemorative Medallion Competition

Japan Mint

Emirates Gold DMCC

PAMP SA

Shangdong Zhaojin Gold and Silver Refinery Ltd

Johnson Matthey, SLC

Valcambi SA

The Royal Mint

In April, the LBMA announced that it was holding a competition for the design and production of a silver medallion to commemorate its foundation 25 years ago – in November 1987. A limited number of the medallions will be produced and presented to all guests attending the LBMA's Silver Anniversary Dinner on 10 December 2012.

The competition was open to all Members, Associates and Good Delivery Refiners.

The specification for the medallion was for a packaged one troy ounce 999 or 999.9 silver commemorative medallion. The Management Committee agreed that entries had to incorporate the following features: the LBMA logo, the dates '1987-2012' and any other features that candidates felt appropriate, for example, depictions of gold and silver, the responsibilities of the LBMA or famous London landmarks.

The deadline for entries was 29 June. 10 LBMA companies submitted entries, with a total of 15 designs received*. The designs of the observe and reverse of each of the entries are shown here. The LBMA invited a distinguished panel of five judges to meet at the LBMA's offices on 2 July to decide on the winning entry, which will be announced at the Silver Anniversary dinner.

*Valcambi submitted two entries, which were very similar, the difference being the frosting of the moon detail on the LBMA logo. This is the entry that is shown in the article.

Argor-Heraeus SA

Schone Edelmetaal BV

Rand Refinery (Pty) Ltd

The Judging Panel

Susan La Niece is the senior metallurgist in the Department of Conservation and Scientific Research at the British Museum, which has metal artefacts dating from all periods amongst its collections. The Museum's laboratories are equipped for chemical analysis and metallurgical examination, to support the dual aims of preserving the collections and increasing understanding of the objects and past technologies. Her research interests include the history of the use of gold and the technologies of gilding and silvering from ancient times. She is author of the British Museum's recent popular publication *Gold*.

Michael Hoare is the Chief Executive of the National Association of Goldsmiths, the trade association for the UK's jewellery retailers, and his main concerns are the training, representation, and security of the sector. Information and communication are also high on his agenda, and he maintains a steady flow of opinion and pithy observation, particularly on ethical issues and the retail economy, via NAG's magazine *The Jeweller* and numerous blogs. A graduate in Fine Art, he has worked in retail and retail trade associations for many years, and maintains that the NAG role is the first where he can combine his interest in public affairs with an appreciation of three-dimensional design.

Michael Allchin has been Chief Executive and Assay Master of The Birmingham Assay Office since January 1999 and has driven its successful diversification into new areas, all closely related to jewellery and precious metals. A Cambridge graduate, he has spent his career in the jewellery industry and has bought and sold for companies ranging from small private concerns to Signet Group Plc, where he was Buying Director for H. Samuel for 14 years. He has extensive experience and a sound understanding of the dynamics of the UK jewellery industry and as an attendee at the British Hallmarking Council and International Hallmarking Convention meetings, he also has thorough knowledge of legislation and global issues relating to jewellery. He is a Director of CIBJO, The World Jewellery Confederation, and of the Responsible Jewellery Council. Both organisations are committed to an ethical jewellery industry and supply chain. He is a Freeman of The Goldsmiths' Company and sits on the Advisory Boards for the International Jewellery London exhibition, the Jewellery Innovation Centre at the Birmingham City University Jewellery School and the Jewellery and Allied Industries Training Council.

David Gornall, Chairman of the LBMA and Stewart Murray, Chief Executive of the LBMA, observed proceedings and are pictured above with the panel of five judges (pictured left to right) Susan La Niece, Senior Metallurgist, The British Museum; Michael Hoare, Chief Executive, National Association of Goldsmiths; Michael Allchin, Chief Executive & Assay Master, Birmingham Assay Office; David Gornall; Chris Salmon, Executive Director and Chief Cashier, The Bank of England; Dick Melly, The Clerk of the Goldsmiths' Company and Stewart Murray.

Chris Salmon joined the Bank of England in 1991. He spent the 1990s working on various issues related to the design and conduct of monetary policy, including during a secondment to the Treasury in 1996. He spent 2000-2002 at the International Monetary Fund before returning to the Bank. Between 2002 and 2006, he worked on IMF-related issues, running the International Finance Division. From 2006 to 2009, he was the Governor's Private Secretary; a period dominated by the financial crisis that began in August 2007. He spent the next two years running the Bank's Sterling Markets Division, with responsibility for the Bank's monetary and financial stability market operations, including the quantitative easing programme that was implemented during the period. He became Chief Cashier and Executive Director for Banking Services in April 2011.

Dick Melly is the Clerk of the Goldsmiths' Company. Following a 33-year career in the Royal Navy as a Marine Engineer, he switched to this new role in 2005. With a proud heritage, the Goldsmiths' Company remains relevant to its trade almost 700 years after it was founded. Today, the Goldsmiths' Company operates the London Assay Office and supports a wide range of charitable causes. Most recently, the Company has made a significant investment in its trade with the opening of the Goldsmiths' Centre in Clerkenwell, providing workshops, exhibition/conference spaces, a café and an educational/training institute.

COMMERZBANK

What you need is a global partner in precious metals

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg CBGL<GO>
Reuters CBGL
Direct contact +352 477 911 2540

Achieving more together

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request.
Copyright © Commerzbank AG 2012

The LBMA Proficiency Testing Scheme for Gold Fire Assayers

By Stewart Murray, Chief Executive, LBMA

In this article Stewart Murray reviews the LBMA's recently completed Proficiency Testing Scheme; the first of its kind. The Scheme, which in future will be run on an annual basis, allows LBMA Good Delivery refiners to assess their assaying accuracy in relation to a large group of their peers.

The LBMA has recently completed the first proficiency testing exercise that allowed gold fire assayers in LBMA Good Delivery refiners to assess their assaying accuracy in relation to a large group of their peers.

So what is proficiency testing and how does it differ from the assay testing that is carried out every three years as part of the LBMA's Proactive Monitoring (PAM) system, which was initiated in 2004. The most significant differences are:

- Proficiency testing is completely voluntary, whereas proactive monitoring is mandatory for all currently accredited refiners.
- Proficiency testing involves the refiner's laboratory assaying a single piece of gold (provided by the LBMA) and submitting the results not to the LBMA but rather to a facilitator (in this case, the UK governmental research agency FAPAS, see below). Thus, the LBMA receives no information on the identity of the laboratories that contributed each assay result (although it is aware of the list of participants). With PAM, on the other hand, each refiner must submit its results directly to the LBMA.
- It is recognised that when a refiner is participating in PAM, its assayers will make extra special efforts to achieve assaying accuracy. At least, in theory, no special effort should be made in the case of proficiency testing. The idea is to show each laboratory how its normal assaying accuracy compares with assayers in other labs.

> *The idea of organising a proficiency testing scheme for Good Delivery refiners was first considered at the 2009 Assaying and Refining Seminar.*

- The LBMA proficiency testing scheme will operate annually rather than the three-yearly technical testing under PAM.
- The proficiency testing results, showing the assay results for all the labs on an anonymous basis, is circulated to all the laboratories that participated. With PAM, the results are not published or circulated (except where necessary and on an anonymous basis to the LBMA's referees).

The idea of organising a proficiency testing scheme for Good Delivery refiners was first considered at the 2009 Assaying and Refining Seminar, when Professor Michael Thompson, a leading authority on proficiency testing in general, presented a paper describing the methodology used and the usefulness of this approach.

The LBMA Physical Committee approved a recommendation to develop a proficiency testing scheme for gold fire assayers and the LBMA referees then worked up the initial draft into a final version, which was approved at the following Seminar in March 2011.

In outline, the scheme involved the LBMA Executive sending each GD gold refiner that wished to participate a 3.3 gram gold sample for assaying, primarily using fire assay to determine the fineness. These samples were produced from

Figure 1. Z scores of all participants.

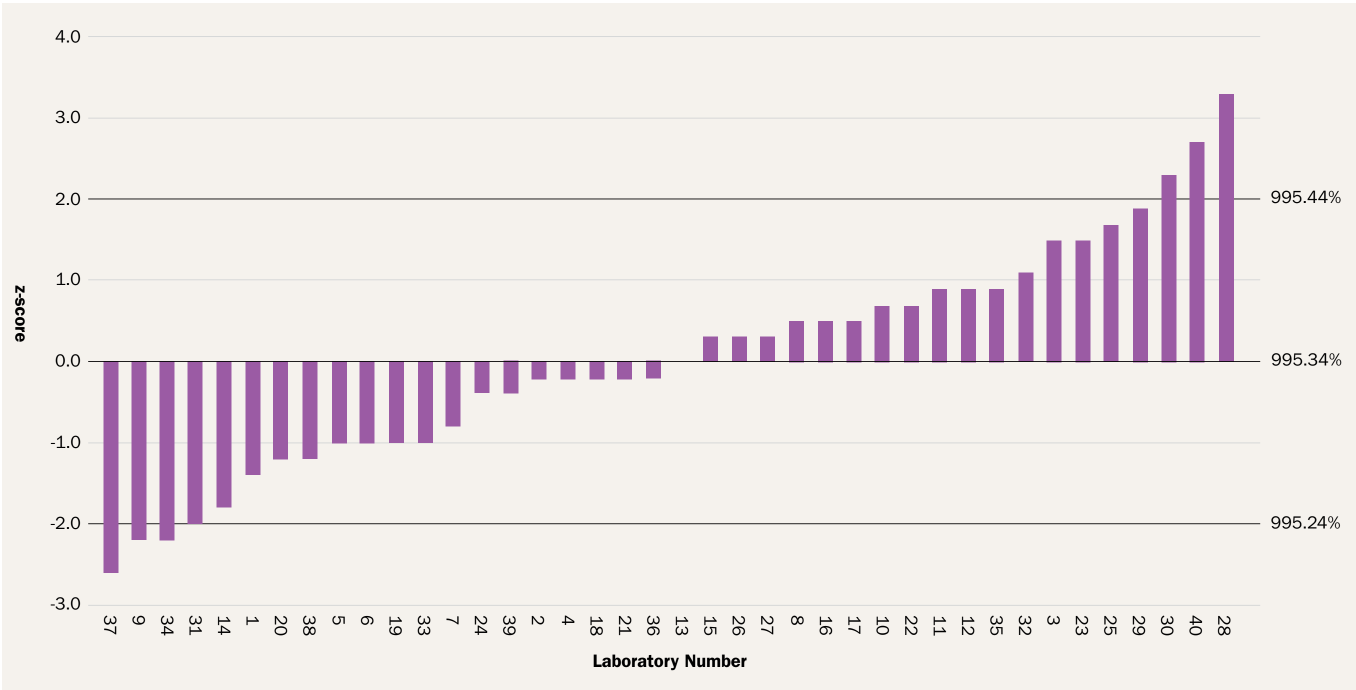
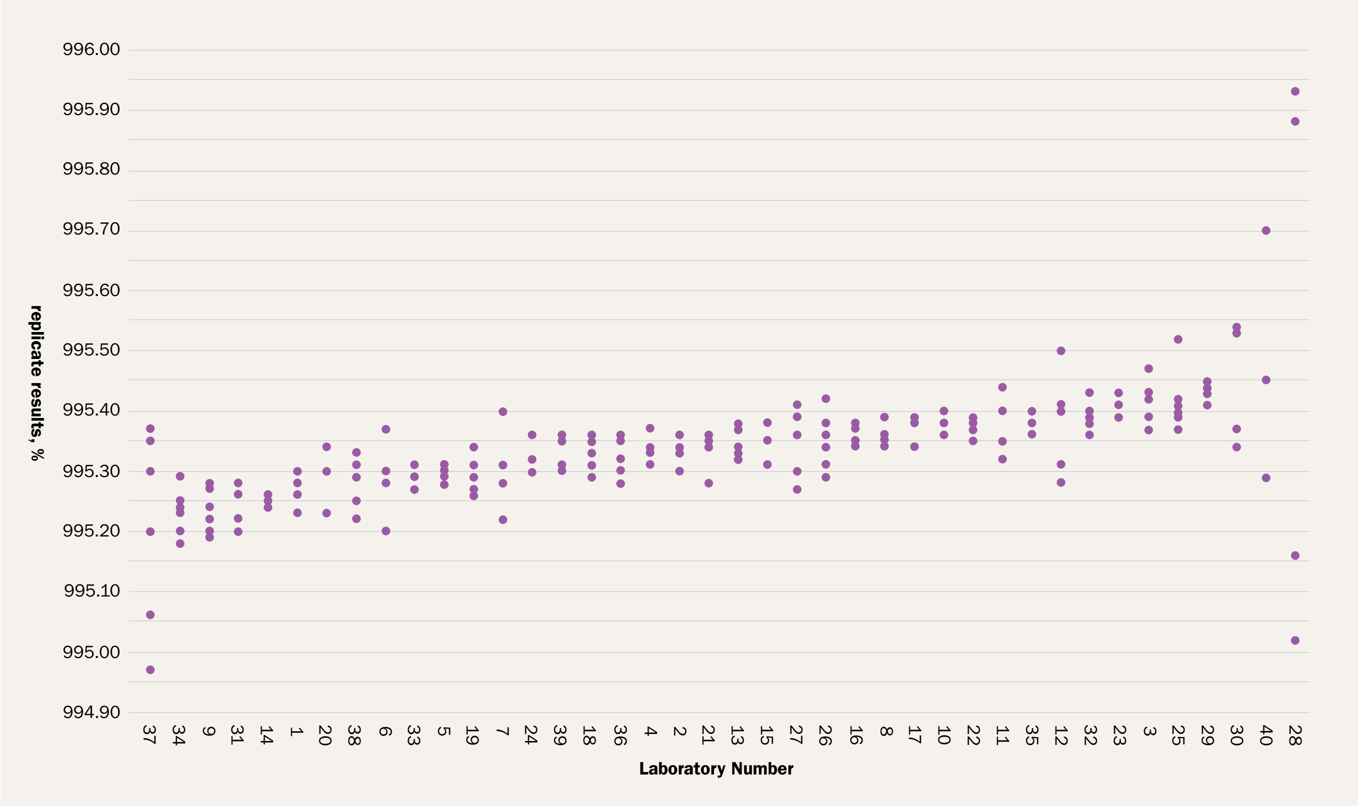
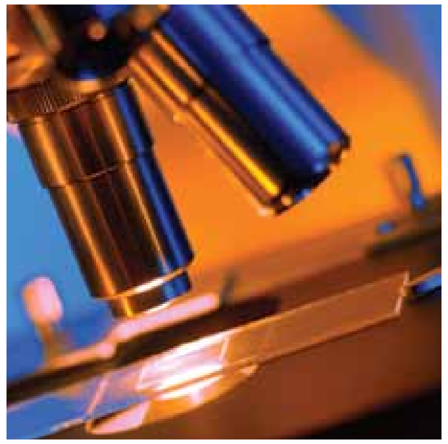


Figure 2. Assays determined in each trial by all participants.





one of the sets of 10 gram reference samples that are used for GD purposes, such as the assay testing of applicants for accreditation. However, a few labs that wished to measure the fineness by a spectrographic analysis of the contained impurities were allowed to take part. Each lab was required to send the assays from a minimum of 4 and a maximum of 6 trials (i.e. individual determinations) to the scheme facilitator chosen by the LBMA, namely FAPAS – the Food Analysis Performance Assessment Scheme. This is the specialist proficiency testing unit located within the UK government's Food and Environmental Research Laboratory. FAPAS was chosen not because of any previous experience with precious metals. Indeed, it had none, but it is an expert on setting up proficiency testing for many different food-related products and analysing the results using well-established statistical methods.

The participation from the GD refiners ended up being significantly higher than expected: 40 of the 63 accredited refiners participated. The results can be expressed in a number of ways. The average value for the whole set of assays was a fineness of 995.34, which was not significantly different from the value calculated from the original cross-checking of the referees when the samples were produced. In proficiency testing, the best-known measure of a participant's performance is the Z-score. The graph on page 17 shows these scores for all the participants. If this score is not within the range of +2 to -2, the lab may have an issue with the accuracy or precision of its assaying. Another way of looking at the results is illustrated by the graph above, which gives the assays determined in each trial. It can be seen that the labs that had high Z-scores were the result of the individual assays having a substantial divergence from the mean value.

FAPAS also carried out other types of statistical analysis of the results, which are described in full in its report, which was only made available to those labs taking part.

> *“The participation from the GD refiners ended up being significantly higher than expected: 40 of the 63 accredited refiners participated.”*

Overall, it is hoped that all participants can draw positively on their results and that, in particular, those laboratories at the edge of the distribution of results can incorporate the feedback into their own quality control procedures so as to improve their assay testing procedures.

Current State of Play of Basel III Implementation in the EU

By Natalie Dempster, Director, Government Affairs, World Gold Council

As the European Parliament breaks for its summer recess, gold is two steps forward in being included as a high quality liquid asset in the new liquidity buffers that will be introduced for commercial banks when lawmakers return.

The European Commission, one of Europe's three lawmaking institutions, published its legislative proposal for the implementation of Basel III in the EU on 20 July 2011. The proposal, known as the Capital Requirements Regulation (CRR) and Directive (CRD IV), did not include gold as a high quality liquid asset for the 30-day short-term liquidity buffer (the "Liquidity Coverage Ratio"), but instead tasked the European Banking Authority (EBA) with assessing which assets should be eligible for inclusion in the buffer.

Europe's other two lawmaking institutions, which have since released their draft texts, have taken a harder line in backing the inclusion of gold. In the European Parliament, chief negotiating lawmaker MEP Othmar Karas explicitly included gold as a high quality liquid asset that the European Banking Authority (EBA) should consider in its report. The Danish Presidency, chairing the negotiations among the national representatives of the 27 Member States (The European Council and third lawmaker) did the same. Both institutions adopted their respective positions in May 2012 and upheld the specific inclusion of gold as an asset that the EBA should specifically assess.

Since then, national representatives in the Council of Ministers, the European Parliament, and the European Commission have been negotiating the final text. These negotiations are expected to end in early September 2012, enabling the European Parliament to formally vote on the proposals in plenary in the week of 22 October. We expect gold to remain explicitly mentioned in the text and for EBA to be tasked with considering gold's suitability.

> *"Global policy makers are increasingly recognising new financial uses for gold. Last year, the European Parliament voted unanimously to include gold as a form of highly liquid collateral in the European Market Infrastructure Regulation."*

Global policy makers are increasingly recognising new financial uses for gold. Last year, the European Parliament voted unanimously to include gold as a form of highly liquid collateral in the European Market Infrastructure Regulation. In July 2012, the Basel Committee on Banking Supervision (BCBS) and the International Organisation of Securities Commission's (IOSCO) issued joint global draft recommendations on what collateral should be permissible for non-centrally cleared OTC derivates, gold was again included.

The EBA will need to report to the European Commission by 30 June 2013 which assets can be included in the liquidity buffer and what haircuts should be applied. Based on this report, the Commission will draft an implementing act that introduces the liquidity buffers by 30 June 2014. This act should enter into force by 1 January 2015, by which date – provided gold is also included in the final act – banks will be able to hold gold to meet their liquidity requirements.

Natalie Dempster, Director, Government Affairs, World Gold Council.

Natalie leads the Government Affairs team, which works with policymakers and influencers globally, such as central bankers, politicians, regulators, academics and the financial services industry, to equip them with the tools and research they need to make an informed decision about the role of gold.

Prior to Government Affairs, Natalie worked in the World Gold Council's Investment Research and Marketing team. Her responsibilities included augmenting the strategic case for gold in investment portfolios, catering for the needs of private banking professionals, family offices and endowments, institutional investors and their respective advisors.

Natalie has 10 years experience as an economist and has worked on the trading floors at The Royal Bank of Scotland and JP Morgan Chase. She began her career as a foreign-exchange trader at JP Morgan Chase on the emerging markets desk. Natalie holds a BSc in Economics from Queen Mary and Westfield College, University of London and an MBA from City University Business School (CASS), London.

Regulation Update

By Ruth Crowell, Deputy Chief Executive, LBMA

Supply Chain Regulation Update

Supply Chain Regulation Update

The SEC announced that its Commissioners will meet on 22 August to publicly vote on the two sets of conflict minerals rules (Dodd-Frank, Sections 1502 and 1504). This is after eighteen months of delay since the proposed rules were issued. Rules are then expected to be published two – three weeks following this vote.

LBMA Membership Seminars

London, April & May 2012

To help members understand the impact on their businesses of current and future regulatory developments, stemming from both US and EU regulators, the Executive organised two seminars in April and May. Topics included US & EU Regulation Impact on the Precious Metals Market, Basel III Implementation and the LBMA Responsible Gold programme. Both seminars were well attended and the LBMA will be looking to conduct similar events in the future to update and assist the Membership with regard to regulatory development.

LBMA Responsible Gold Forum

1 May, Paris

The LBMA held a series of meetings in Paris on 1 May to discuss the particular issues surrounding conflict gold regulation and in relation to the LBMA Responsible Gold Guidance (see the Programme on the right). This was held directly prior to the Implementation Meetings for the OECD Due Diligence Guidance (Paris, 2-4 May). The LBMA Forum was well attended with representatives coming from many Good Delivery refiners, LBMA Members, governments, and international organisations, including the World Bank, United Nations, State Department and many others. The LBMA received formal praise for its leadership in organising the Forum from government representatives at the OECD meetings that followed.

Opening Session

Welcome	*Stewart Murray, LBMA Chief Executive*
Introductory Remarks	*David Gornall, LBMA Chairman, Global Head of Precious Metals Trading, Natixis, London Branch*

Session 1: Gold Industry Initiatives Harmonisation

Panel Discussion

Ruth Crowell, Deputy Chief Executive, LBMA
Terry Heymann, Director, World Gold Council
Fiona Solomon, Director, Standards Development, Responsible Jewellery Council
Mumtaz Ahmed, Intel, Electronics Industry Citizenship Coalition

Session 2: Coordination and Implementation of Key International Initiatives

Panel Discussion

Mora Johnson, Foreign Affairs and International Trade, Canada
Lahra Liberti, Senior Legal Adviser, Investment Division, OECD
Ruben de Koning, UN Group of Experts on the DRC
Richard Robinson, USAID

Session 3: Artisanal Mining: Dialogue on Implementation of the Gold Appendix

Panel Discussion

Greg Mthembu-Salter, Phuzumoya Consulting
Louis Marechal, Policy Officer on Mineral Resources, Ministry of Foreign and European Affairs, France
Gemma Cartwright, Gold Project Manager, Fairtrade and Fairmined, Fairtrade Foundation
Lina Villa, Executive Director, Alliance for Responsible Mining
Patrick Schein, Executive Board member, Alliance for Responsible Mining
Thomas Hentschel, Adviser, Mineral Resources, SECO
Mamadou Barry, Oil, Gas and Mining Policy Division, The World Bank

Closing Remarks: LBMA Regulatory Affairs Chairman
Ed Wells, Governmental Affairs, HSBC

DIARY OF EVENTS 2012-2013

AUGUST

6-8
Diggers & Dealers Forum 2012
Kalgoorlie, Australia
www.diggersndealers.com.au

24-26
India International Gold Convention 2012
HICC Novotel, Hyderabad, India
www.goldconvention.in

SEPTEMBER

5-7
Precious Metals Summit
Vail, Colorado, USA
www.precioussummit.com/summits/2012-colorado

9-12
Denver Gold Forum 2012
Hyatt Regency, Denver, CO
www.denvergold.org

18-21
International Platinum Conference
Sun City, South Africa
www.platinum.org.za

30/09-3/10
Conference of Metallurgists 2012
Niagara, ON, Canada
www.metsoc.otg/com2012/default.asp

OCTOBER

22-23
The Gold Symposium 2012
Luna Park, Sydney, Australia
www.gold.symposium.net.au

25-26
The Silver Summit
Spokane, USA
www.cambridgehouse.com

NOVEMBER

11-13
LBMA /LPPM Precious Metals Conference
Grand Hyatt Hotel
Hong Kong, China
www.lbma.org.uk

DECEMBER

10
LBMA Silver Anniversary Dinner
(For Members, Associates and invited guests)
Mansion House
London, UK
www.lbma.org.uk

APRIL 2013

7-8
Dubai Precious Metals Conference 2013
Dubai, United Arab Emirates
www.dpmc.ae

16-20
Denver Gold Group European Gold Forum 2013
Zurich, Switzerland
www.denvergold.org/gold-forums/egf-2013

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members
On 26 March 2012, Engelhard Metals Ltd changed its name to BASF Metal Ltd.

Associates
On 17 April 2012, A-Mark Precious Metals was admitted as an Associate.

These changes brought the membership to a total of 136 companies, comprised of 64 Members (of which 11 are Market Makers), 68 Associates and 4 Affiliate Members.

GOOD DELIVERY LIST

Nadir Metal Rafineri San. Ve Tic. A.Ş. of Istanbul (which was previously included on the Gold List in December 2011) was added to the Silver List on 20 June 2012.

The silver refinery at La Oroya in Peru was transferred to the Former List on 6 June 2012.

There are currently 63 refiners listed on the Gold Good Delivery List and 73 refiners on the Silver Good Delivery List.

COMMITTEES

Management
The Committee met at the end May to review reports from the various subcommittees and provide guidance on a number of current activities.

One particular item of discussion was the gold trading survey, which members are now submitting to the Executive. The Committee noted, in particular, the strong recommendation from the RAC that all Members should be encouraged to take part in the survey, since the resulting statistics on gold trading provide an essential backdrop to discussions between the LBMA and various regulators. The Committee also noted the feedback from a number of Members indicating that the putting together of the data for the survey was a challenge for their management information staff. Finally, the Committee agreed that the survey should only be carried out for a year, covering the trading in the first quarter. It was hoped that this would ease the burden on Members and at the same time, ensure a more comprehensive coverage.

Regulatory Affairs
The RAC met in May to discuss a variety of regulatory issues. These included the LBMA Responsible Gold Guidance as well as the LBMA's work within the OECD Working Group on Conflict Gold. The RAC also reviewed the LBMA's current contacts with regulators, with a view to improving communication between the LBMA and regulators within the UK, EU and US. To assist Members in understanding the impact of current and forthcoming US and EU regulation on the bullion market, the RAC arranged a series of Regulatory Seminars – see Regulation Update on page 20 for details.

Physical
At its meetings in May and June , the Committee noted progress on two important projects:

- The development of a new version of the visual guide to Good Delivery bars (which will help refiners to understand what is acceptable to the London vaults in relation to the physical imperfections in Good Delivery bars). This will take the form of a special area of the LBMA website.
- The scheme for accrediting vault staff: the working party under the chairmanship of Louise Lee of the Bank of England has made good progress in developing the content (with assistance from the City and Guilds organisation) to be used for the training and testing of vault operators.

The Committee also discussed the due diligence aspects of Good Delivery accreditation, a topic that will also be on the agenda for a forthcoming joint meeting with the Membership Committee.

In recent months, the Committee has been considering a request from the Allgemeine refinery in Pforzheim for its continuously cast silver bars to be given GD accreditation. Finally, after the examination of sample bars by a panel of vault managers in London, these bars will be accepted as Good Delivery when the bars go into commercial production at the end of June, 2012. The article on page 10 provides further details of the process.

The decision by the Committee to transfer the silver refinery at La Oroya, Peru to the Former List is a sad moment in the history of the silver market. This refinery, previously known as Cerro de Pasco, was probably the oldest silver-producing plant on the Good Delivery List, but its operations have been suspended for some time due to a mix of financial and technical problems. The Committee had given the refinery an extended grace period in which to restart production, but at the end of this, it felt that it had no alternative but to transfer it to the Former List.

Public Affairs
At this time of year, the PAC's agenda is almost totally devoted to the development of the programme for the annual conference in Hong Kong, during the period 11-13 November. A full speaker programme has been agreed. Highlights include Professor Yu Yongding of the Institute of World Economics and Politics, Chairman Wang Zhe of the Shanghai Gold Exchange and Xie Duo, General Director of the People's Bank of China. Registration is now open for the 2012 event. Please see the LBMA website for more details.

The LBMA has, for a number of years now, set aside for charitable purposes, 50% of the money generated from fines levied on GOFO and SIFO contributors that fail to contribute rates more than three times in a calendar month. Last year, the LBMA made a donation to the Red Cross Fund for the Japan Tsunami, and charities that have benefitted in previous years include the St Mungo's organisation, Kids Get Going and Cancer Research. This year, the Committee has agreed that the funds set aside from fines collected in 2011 will be distributed evenly between three charitable causes; the Chad Relief Foundation, ChildHope and the Jennifer Trust.

Membership
The main topic on the Membership Committee's agenda at its meeting in March was the need to develop clearer guidelines regarding what information sponsoring companies need to provide when supporting applications for membership.
The particular focus was on applicants for Associateship that provide a physical service (such as transporting or storing metal or providing assaying services). This is part of an ongoing discussion on the due diligence to be carried out by the LBMA Executive, the sponsors of companies applying to become part of the membership and those seeking Good Delivery accreditation.
Another important recommendation of the Committee (subsequently accepted by the Management Committee) was to allow certain Associates that are actively involved in the loco London market to apply to be reclassified as Members

Finance
The Committee met in June with the main item on the agenda being to review the three-year budget forecast in light of the income and expenditure for Q1 2012. It also reviewed the proposed conference budget and proposal to reduce the Association's foreign exchange exposure. The Committee has welcomed two new Members in recent months, Brian Pereira of Brink's and David Holmes of Commerzbank.

Committee Vacancy
There is a vacancy on the Regulatory Affairs Committee. Anyone interested in applying should send a brief statement of their market experience to the Chief Executive (Stewart.Murray@lbma.org.uk).

Annual General Meeting
The 2012 LBMA Annual General Meeting was held at Armourers' Hall, Coleman Street, in the City of London at 5:30 pm on 20 June. In addition to the formal business of approving the accounts and appointing the auditors, the meeting received reports from the Chairman and the chairs of the five subcommittees. It also agreed significant changes to the Articles of Association, which were designed, amongst other things, to bring the articles into line with the current version of the Companies Act.
The election for the Management Committee at this year's AGM was particularly interesting. As per the new version of the Articles agreed last year, the four Ordinary Member representatives on the Committee were required to stand down at this year's AGM (though they were eligible to stand again for election, for a two-year period, which all of them did). There would not normally have been an election in respect of the Market Makers section of the Committee (as the five representatives in it had been elected for a two-year period in 2011). However, because of the recent resignations of Jeremy Charles and Clive Turner, the Committee decided that rather than it co-opting new members, the membership should be asked for nominations for election at the AGM. In the end, there were five candidates for the Ordinary Member section and four for the two vacancies in the Market Makers section. The following representatives were elected to the Management Committee:

Ordinary Members
Grant Angwin (Johnson Matthey)
Simon Churchill (Brink's)
Jeremy East (Standard Chartered Bank)
David Gornall (Natixis London Branch)

Market Making Members
Peter Drabwell (HSBC Bank USA NA)
Kevin Roberts (JP Morgan Chase Bank)
The three continuing Market Maker representatives on the Committee are:
Philip Aubertin (UBS)
Raymond Key (Deutsche Bank)
Steven Lowe (Bank of Nova Scotia – ScotiaMocatta)

The new Committee then met and elected David Gornall as Chairman and Steven Lowe as Vice Chairman for the coming year.

Executive Meetings and Travel
In March, the Chief Executive took part in a meeting in Brussels (dubbed the PlatforM) organised by the European Precious Metals Federation, which was attended by a number of associations representing the precious metals markets in Europe and North America. These included the International Platinum Group Metals Association (IPA), the LPPM, the Silver Institute and the World Gold Council. All participants agreed that it would be useful to hold such meetings on an annual basis to allow an exchange of information about a range of topics and to avoid a wasteful duplication of effort. The next meeting will be organised by the IPA and will be held in London in early September.

Visit to New York and Washington
In an effort to proactively ensure the acceptance of the LBMA's Responsible Gold work, a small delegation was sent to the US to meet with regulators. This delegation (consisting of Stewart Murray, Ruth Crowell and Jeremy Charles) visited New York and Washington with the main purpose to inform US official bodies that are concerned with conflict minerals about the importance of the LBMA, its Good Delivery List and the Responsible Gold Guidance, which has now been accepted by all listed gold refiners.

In New York, in addition to the Federal Reserve Bank of New York, the delegation met representatives of the two exchanges (CME group and NYSE Euronext), the World Gold Council and various Members. In Washington, the delegation met with the relevant staff as well as three of the SEC's five commissioners. Similar meetings were held with the World Bank, the US State Department, the American Bankers Association and the economic staff of the British embassy.

Silver Anniversary Dinner
All Members, Associates and Good Delivery refiners will shortly be invited to apply for tickets for the silver anniversary dinner to be held in the Mansion House in the city of London on 10 December 2012. An initial allocation to the various grades of membership will be:

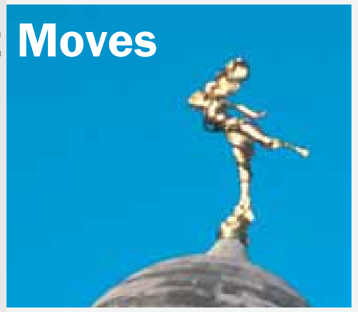
Market Makers	10
Ordinary Members	6
Associates	4
Good Delivery Refiners	2

After receipt of the initial reservations (which should be submitted by the end of September), additional places can be reserved by application.

As part of the preparations for the dinner, companies within the membership and the Good Delivery List were invited to submit entries to the competition for the manufacture of commemorative silver medallion to be presented to those attending the dinner in December. A panel of distinguished judges met at the LBMA on 2 July to consider the 15 entries received. The LBMA is most grateful to all the companies that submitted entries for the competition. The judges' decision on the winning entry will be announced at the dinner itself. See the article about the Competition on page 14.

LBMA Staff
It was a particular pleasure for me to be able to announce the richly deserved promotion of Ruth Crowell to the position of Deputy Chief Executive of the LBMA. Ruth has worked for the LBMA for the past five years, most recently as its Commercial Director, primarily responsible for the strategic commercial development of the Association, including Intellectual Property, Communications, and Events. Ruth also acts as the LBMA's main contact for regulatory affairs.

Market Moves



Ian Penney to Mitsui & Co Precious Metals Inc

Ian Penney joined MPM (Mitsui & Co Precious Metals Inc) on 25 June 2012 as a Precious Metals Trader. After five years at Deutsche Bank, Ian joined the Energy Desk at Cargill. From Cargill, he moved to the Natixis (then Natexis) Energy desk in 2006. Ian joined the Precious Team after one year and was responsible for the Gold and Silver books.

Sonia Hellwig joins Heraeus Metallhandelsgesellschaft mbH

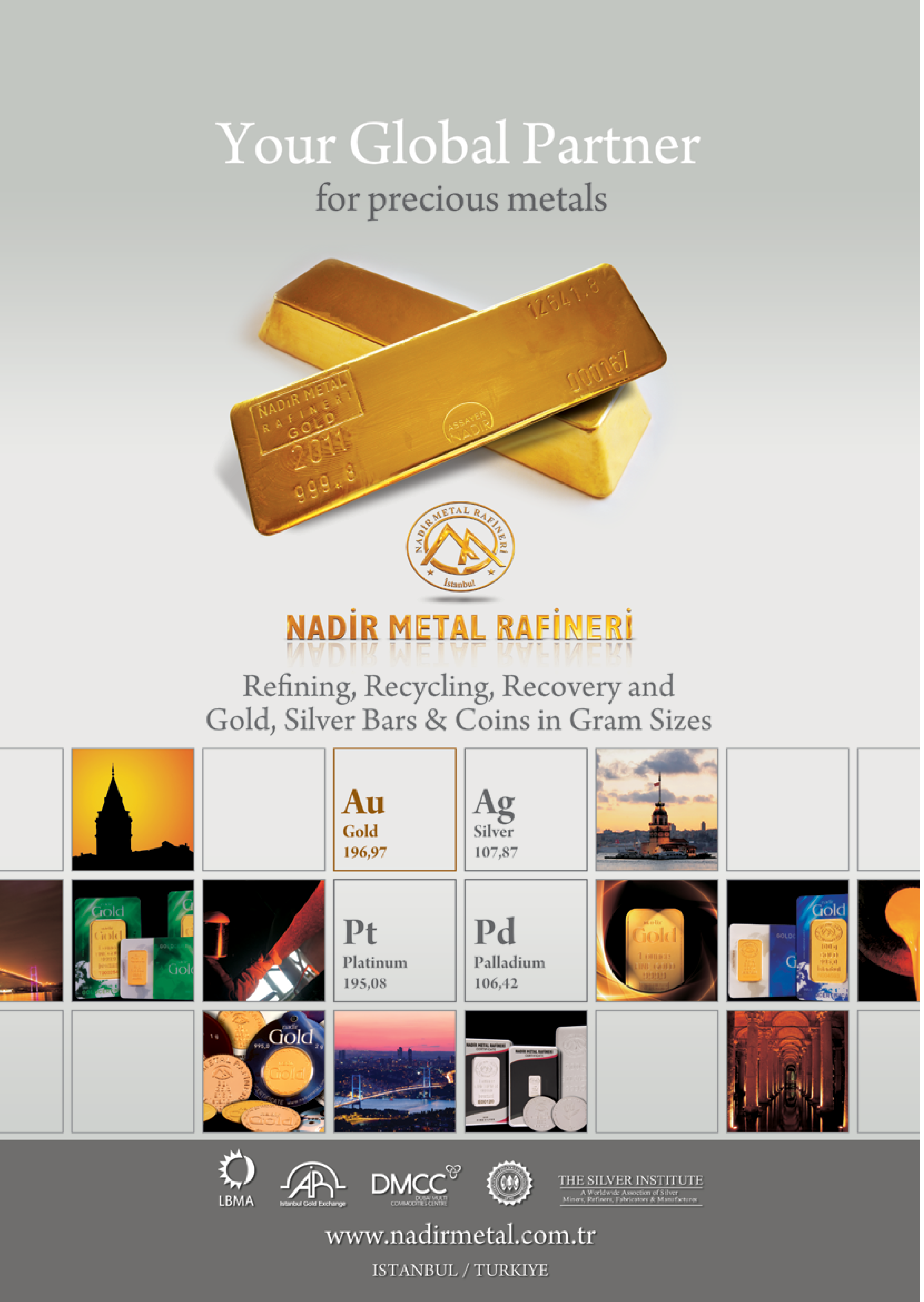
Before joining Heraeus, Sonia was a Managing Director of Jewellers Trade Services Ltd. London from 2007 to 2012, where she developed the business for the sale of bullion coins and bars. In her new role as Senior Manager Sales and Marketing at Heraeus, she will be responsible for strengthening and further developing the precious metals sales activities.

Falkmar Butgereit to Heraeus Metallhandelsgesellschaft mbH

Falkmar Butgereit joins Heraeus as a Silver Trader. He began his career at WestLB Duesseldorf as a FX Spot Trader, with initial responsibility for the Emerging Markets currency flow. Shortly after he took over the EURUSD book and managed gold and silver flow. Falkmar holds a diploma degree in economics from J.W. Goethe University.

Roy Friedman to Dillon Gage Metals

Roy Friedman has joined Texas-based Dillon Gage Metals as Executive Vice President of Business Development. Mr. Friedman has over 30 years' experience as a precious metals trader, and has worked previously for Credit Lyonnais, Mocatta Metals and Amark precious metals.



A Golden Future for the London Bullion Market

Editorial comment, by Jeremy Charles, former Head of Precious Metals, HSBC

Jeremy Charles recently retired as Head of Precious Metals at HSBC after a distinguished career in the bullion market stretching back 37 years. In this article he reflects on his career and sets out his vision for the future of the London bullion market.

I am honoured to have been asked to write the *Alchemist* editorial this quarter as it coincides with my retirement from the business.

Thirty-seven years has past by in what seems like the blink of an eye, but I take with me so many wonderful memories of a lifetime spent in this fascinating industry.

Since my first day at work in NM Rothschild's bullion operations department in Croydon right up to my last management position running HSBC's global precious metals business, there has been a constant change in the practices, products and services of the industry, and none more so than right here in London .

It is with this constantly changing market place in mind that I have been asked to write a few words on my vision for the London bullion market going into the future. To understand what this future may hold, it is important to understand the journey that has already taken place since the earliest days of the market.

If we look back to the beginnings of the London market, it is clear to see that historical factors have played the most important part in why we are where we are at the present time. Despite the market having been restricted by highly controlled government legislation, the last 300 years have seen a rather slow but nonetheless progressive expansion of products and services

> *"the last 300 years have seen a rather slow but nonetheless progressive expansion of products and services."*

Many of these have been wedded to regulatory changes and for the most part have been beneficial to the continuing development of the business. The phrase that comes to mind is evolution rather than revolution as far as our market is concerned.

However, unlike the steady market place in London, the participation by various industry sectors has ebbed and flowed considerably, depending on politics, demographics and history. From the time when gold was the base asset on which currencies were issued, to the export restrictions in major producer countries and import restrictions in major consumer countries, the wider world of gold seems to have changed endlessly.

> *"The infrastructure here has an often unheralded place in the global industry and I have heard for at least 20 years that London's position is being threatened by one new initiative or another."*

Gold of course is the primary headline maker and it is easy to forget the other metals. Yet these metals, including silver, platinum and palladium, have enjoyed incredible success not in terms of price but in terms of importance to our fellow human beings. An amazing number of industrial applications now use these metals and it is testament to those scientists and entrepreneurs, particularly those focused on environmental benefits, whose vision, dedication and determination has paid such significant dividends for all.

And it is in facilitating the smooth flow of metal from producer to consumer where London really plays its part and it is this facilitation that has been so successful for London above everything else. Financing the industry globally is what London really does exceptionally well. Its large financial institutions are inexorably linked to the infrastructure of London, which includes the necessary legal, tax and accounting support, the LBMA and LPPM Good Delivery lists that ensure the highest standards of products, the support and service businesses including the transportation and custody providers, and of course the regulatory support from the Government, the Central Bank and the Treasury to ensure an appropriate level of oversight, governance and protection for all participants.

The infrastructure here has an often unheralded place in the global industry and I have heard for at least 20 years that London's position is being threatened by one new initiative or another. A new gold market is being created in an upcoming financial centre, new regulations are being implemented that could threaten the market, or a new product is being developed. All of these have been the cause of discussions where concerned institutions have felt threatened by change and competition, but my view on this has never changed.

Unless the financing of the global industry moves away from London, the market will continue to be the dominant service provider for the global industry.

The efficient exchange of metal that has been purchased or sold, borrowed or lent, and the smooth manner in which metal is cleared across bullion accounts ensures that participants are guaranteed an extremely efficient and robust service. A result of the financing is the pricing, the physical supplies both in and out of London, the clearing system and, as I have mentioned earlier, the support surrounding those services.

So my point here is that I do not foresee a time when London's influence on the industry would diminish. Despite all of the concerns by some in the market what we have seen during the last 37 years, London is a market that has built on its foundations and continues to develop and grow its products and services right across the spectrum of business.

> *"Unless the financing of the global industry moves away from London, the market will continue to be the dominant service provider for the global industry."*

The ETFs are of course one example, and a significant one at that, but if I look back as to where the market was when I started, the entire spectrum of services has broadened significantly and much of this is a result of the LBMA's guidance as well as that of the Association's predecessors and the Bank of England. The credibility of the London Good Delivery list has

increased in line with the number of refineries whose products have achieved the highest market standard. The number of vault providers has increased in line with the enormous increase in investment gold now being held in custody. The infrastructure of the London market and the guarantee of liquidity in the trading products have reached the point where London market data is now being offered globally on a commercial basis.

> *"What all of this means is that I am in no doubt that we should expect changes over the course of time but that we should not fear these changes."*

What all of this means is that I am in no doubt that we should expect changes over the course of time but that we should not fear these changes. The regulatory discussions currently taking place may to a degree determine some changes in the way in which the London market operates. But in my opinion, the impact will not be significant.

Longer term, I can see the emerging market institutions in Asia having sufficient confidence to expand westwards, where for example the large Chinese Banks will become significant participants and have meaningful representation in London and not just participate in London's markets. This expansion should not only be accepted, but should be encouraged and embraced whole heartily.

With new participants come new ideas and a fresh perspective, resulting in new products and services for the industry at large. This is not only good for the market, but it is vital for the economic well-being of our industry.

In response to this significant growth potential, I believe that the many individual organisations that together make up the London market (trade associations, clearing company and the fixing companies) should operate under a single organisation in future. Such an organisation would represent every primary component of the London Precious Metals Market, which in turn would create a very powerful focal point to ensure that future development is co-ordinated. There would of course be considerable challenges in achieving this, but I firmly believe that the effort would be well worthwhile.

> *"So I retire with a market place that not only is in fine health, but is one that, I believe, has a tremendous opportunity in the future."*

And so to conclude, my view is that our market will continue to grow for many years to come. No one in our business needs to be afraid of the future. In fact, the outlook could not be more positive to me.

So I retire with a market place that not only is in fine health, but is one that, I believe, has a tremendous opportunity in the future. I myself shall leave with the most enjoyable memories of my relatively short period of time in this market.

The LBMA would like to take the opportunity to thank Jeremy for all his support and hard work over the years particularly during his distinguished tenure as Chairman of the LBMA (2006-2009) as well as two stints on the Management Committee (1998-2009) and (2011-2012). The LBMA would like to wish him a very happy retirement.

facing facts

Paul Burton,
Senior Equities Analyst
Thomson Reuters, GFMS

Thomson Reuters GFMS

Those of you at the downstream end of the gold market probably never give much thought to where your gold actually originates. If you are a bullion bank, it probably reaches you through one of the LBMA-accredited refiners. If a jeweller or fabricator, your supplier is one of the world's bullion banks. You probably have little awareness of which gold company actually mined the gold in the first place. To the end user, an ounce of gold is an ounce of gold no matter whether the ore was mined 4,000m underground by AngloGold Ashanti in South Africa or 4,000 m above sea level in the Peruvian Andes by Barrick Gold.

It is one of the quirks of the gold industry that it has evolved with a structure where different companies are responsible for the different stages as gold progresses up the value chain from the miner through the refiner and the dealer to the fabricator. There are no companies that embrace the complete value-added process through from nugget to necklace. This lack of vertical integration is one of the unique characteristics of the gold industry that sets it aside from many other industries, including other resource industries, such as copper, where there is a much greater integration.

This is not necessarily a sub-optimal industry structure, but it encourages the producers to abdicate responsibility for their product as soon as it leaves the mine property. In their eyes, there is always a ready buyer, which can lead producers to believe that they do not have to do any marketing to maintain demand. It is true that some of the gold mining companies are members of the World Gold Council and fund that organisation's efforts to promote and market the metal, but many just accept that a cheque will come through the door as regularly as they produce the gold.

We can leave the argument for greater involvement by the gold producers in the welfare of their product to another day, but I wonder if any of the bullion bankers actually look down the value chain and consider the security of their supply. Are they concerned about the health of the industry that feeds some 2,800 t of new gold into the pipeline each year or do they believe there will always be a ready supply? For those dealers who can't tell their head grade from their tails, their stope face from their pit bottom, or think that leaching is a medieval medical practice, it may be useful to highlight some of the trends within the gold mining industry.

Figures from Thomson Reuters GFMS show that mining output has been growing for several years due to the rise in the gold price. In 2011, production reached a record of 2,818 t, representing a 16% increase, or 400 t, over the past three years from its recent low in 2008; which had followed seven years of uninterrupted declines in mine supply.

Production is expected to grow again this year.

That mine production has rebounded so strongly, and in such a short time, is evidence of a booming industry driven by still elevated prices. A large number of producers reported record earnings in 2011, and this cash flow is either being used to fund future mining projects and exploration work, sometimes at projects where production has not already begun, or funding M&A activity. A small amount is being distributed back to shareholders, but growth and reinvestment in projects commonly take precedent over dividends. The end goal of this rush for ounces is to maximise exposure to buoyant gold prices, which rose once again year-on-year.

However, in order to reap the rewards available in this environment, miners must be disciplined about cost containment. In 2011, the cost curve shifted upwards once again, as familiar issues such as shortages of labour, equipment and high oil prices continued to pressure miners' margins, leading to an increase of 15% to total cash costs year-on-year to US$643/oz.

What is often not fully understood is that higher gold prices have also had a marked influence on costs in 2011: firstly through increased gold price-linked royalty payments, and secondly through enabling the profitable mining of lower grade ores. Last year, the global average mill head grade fell by just under 5%, and while we can allot part of the reason for this continued trend on the exploitation of lower-grade bulk tonnage mines, and periods of planned lower-grade mining at some larger operations, at least a part of the reason behind the fall is the exploitation of lower-grade resources or satellite deposits previously considered uneconomic under lower prices. While this practice of low grading can prolong asset life, it can hinder production volumes in the near term, while increasing cash costs on a per ounce basis.

And readers should not assume a bottom line profit margin simply by subtracting the cash cost from the gold price. As Thomson Reuters GFMS has calculated, the average real cost of mining an ounce of gold is substantially higher – around US$1,040/oz in 2011. This figure includes all 'stay-in-business' expenditures. Add on top of this, say, US$50-100/oz for exploration – a company's R&D – and this cuts working margins more significantly than an initial, simplistic glance suggests.

So, in summary, primary gold mine supply is rising steadily, a function it must be said of higher prices rendering many existing projects economic rather than of new production from successful exploration, but real costs are rising too, a trend that threatens profitability. So for producers, all ounces are not created equal. Some will be won at much lower cost and those will ensure a continuation of supply to the dealers and jewellers.

Paul Burton
Senior Equities Analyst, Thomson Reuters GFMS.

Paul Burton graduated as a mining engineer from the Camborne School of Mines in 1975 and spent almost twenty years working in the South African gold mining industry before becoming editor of World Gold Analysts in 1996, a position he still holds. In 2008 he became Managing Director of GFM World Gold until the company was acquired by Thomson Reuters last year and is now Senior Equities Analyst, Thomson Reuters GFMS. He is an established speaker on the international conference scene and is Chairman of the FTSE Gold Mines Index Committee. He holds an MSc in Mineral Economics and an MBA from the University of the Witwatersrand.

The Alchemist is published quarterly by the LBMA.
For further information please contact Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

PAMP®

Produits Artistiques Metaux Precieux

TRUST IS PRECIOUS

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up uf doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

The largest selection of bullion bars in the world, from 12.5 - kilogram to 1 - gram bars.
PAMP bars are accepted as 'Good Delivery' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM).
PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold and Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only three 'Good Delivery' Referees' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints.
PAMP is also internationally renowned for a variety of sophisticated precious metals products, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set varations, or with partial or total gold plating.

The Art of Precious Metal Transformation®

SGS

LBMA

LPPM

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

LBMA

Alchemist

The London Bullion Market Association **ISSUE 68** October 2012

In this issue

THE LBMA SILVER ANNIVERSARY • THE LBMA SILVER ANNIVERSARY •

25 *YEARS*

1987-2012

Founded 25 years ago in 1987, this special edition of the Alchemist celebrates the LBMA's Silver Anniversary. It features an article by the first Chairman of the LBMA, Robert Guy, who looks back at the inception of the association as well as an Editorial feature by the current Chairman, David Gornall.

It's a precious world, we've got it covered.

MITSUI GLOBAL PRECIOUS METALS

Singapore • Hong Kong • Tokyo • London • New York

Singapore
80 Robinson Road,
#15-02,
Singapore 068898
Tel: 65 6372 8050

sgmpm@mitprecious.com

Hong Kong
Suite 1306,
Two Exchange Square,
8 Connaught Place,
Central,
Hong Kong
Tel: 852 2899 2026

hkmfo@mitprecious.com

Tokyo
2-1 Ohtemachi 1-Chome,
Chiyoda-Ku,
Tokyo
Tel: 81 3 3285 3407

tkfcs@dg.mitsui.com

London
4th Floor,
St. Martin's Court,
10 Paternoster Row,
London EC4M 7BB
Tel: 44 20 7489 6761

ldnfo@mitprecious.com

New York
200 Park Avenue,
New York
NY 10166
Tel: 1 212 878 4122

nymfo@mitprecious.com

All the metals – all the angles – all the time

Reinterpreting Gold's Price Behaviour

By Daniel Brebner, Head of Metals Research, Deutsche Bank

Gold is not just money, it is 'good' money. In this article Daniel Brebner argues why Gresham's Law is so relevant in understanding gold and how it behaves.

Gold is widely misunderstood. Many investors don't understand how it is valued and why it behaves the way it does. Some are uncomfortable that gold is not 'consumed' like other commodities – it is not eaten, or burned or forged, as food, energy or industrial metals would be.

Gold has no use, according to many. But then gold is not really a commodity at all. While it is included in the commodities basket it is in fact a medium of exchange and one that is officially recognised (if not publicly used as such). I would argue that gold is an officially recognised form of money for one primary reason: it is widely held by most of the world's larger central banks as a component of reserves.

I would go further, however, and argue that gold in fact could be characterised as 'good' money as opposed to 'bad' money which would be represented by many of today's fiat currencies. In describing gold as such I refer to Gresham's Law: when a government overvalues one type of money and undervalues another, the undervalued money (good) will leave the country or disappear from circulation into hoards, while the overvalued money (bad) will flood into circulation.

Support for this assertion comes from my interpretation of US government action at the end of dollar convertibility in 1971 (the end of the Bretton Woods system). The US ended convertibility because it did not want to send its gold to France or Britain who were demanding gold (or about to) rather than dollars; this in response to the decline in perceived value of the dollar due to profligate government spending during the 1960s. The US government valued its 'good' gold money more than its 'bad' paper money and therefore set about hoarding it – officially. Thereafter the USD, the bad money, became the world's reserve currency (with immense benefits for US government funding, in our view).

This 'good' money assertion holds from this point, but for a short window during the late 1990s when several western governments (Britain, Canada, Switzerland, etc) decided to convert their gold to other (presumably more valuable?) fiat currencies – most likely the US dollar. I would suggest that the US government did not object.

Characteristics of 'good' money

The ideal medium of exchange must balance the paradox of representing value while having little intrinsic value itself. There are very few media which can do this. Fiat currencies physically have no use other than that which is prescribed to them by government and accepted by the public. That fiat currencies cost little to produce is of secondary concern and, I believe, quite irrelevant to the primary purpose. Gold is neither a production good nor a consumption good. Jewellery, I view as a form of storage or hoarding (the people of Portugal have all but exhausted their personal gold stores, hoarded in the form of jewellery, having converted it to survive the crisis). If gold did have a meaningful commercial use, I believe that it would make the metal less attractive as a medium of exchange, as the value of the metal in whatever market it was used in could periodically interfere with its medium-of-exchange role.

That gold is fairly costly/difficult to obtain is of secondary relevance to the value that it is used to represent. The fact that this characteristic has throughout history continuously frustrated governments reliant on a gold-standard and therefore unable to expand their spending at will is, again, secondary. Nevertheless I do believe that scarcity could be an important factor in ensuring the longevity of a currency. Scarcity may create some stability in the value that it represents and in turn influence the confidence with which the public regard it.

Other characteristics are important in fulfilling the requirements for 'good' money: indestructibility, divisibility, transportability and universal acceptability.

The conclusion from my overview of gold functionality is that the key difference between good and bad money is scarcity (imposed supply discipline could be another way of describing this). Fiat currencies can be scarce but this scarcity may change on a whim which may both impact its tenure as currency and/or relegate it to being characterised as bad money.

Figure 1: USD devaluation vs gold (rebased) log scale

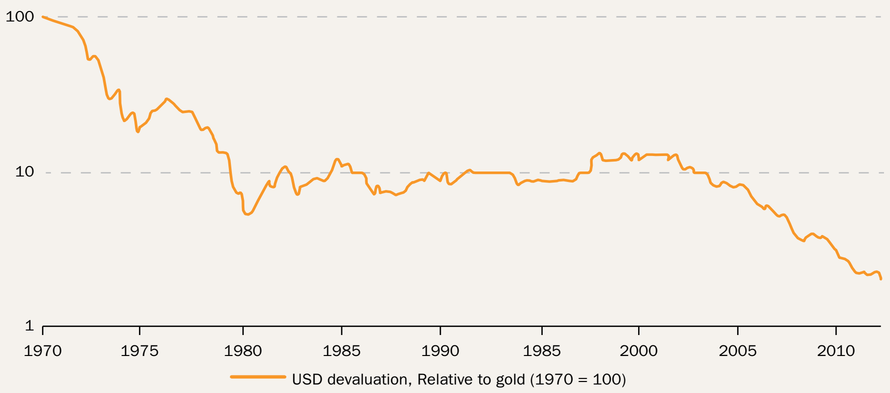
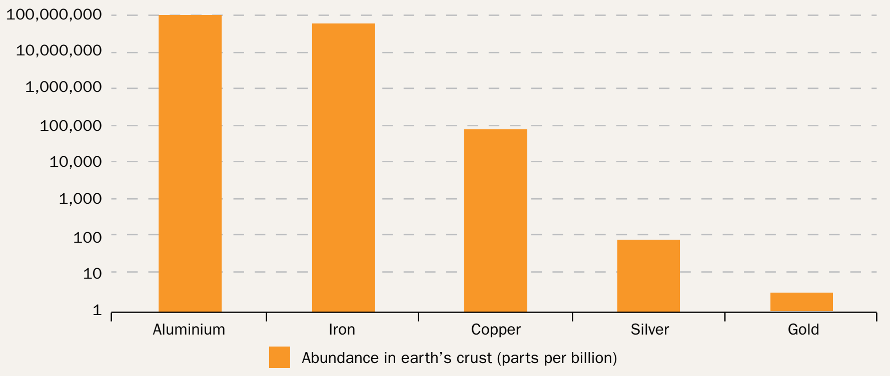


Figure 2: Relative scarcity - selected elements



Gold is truly scarce, having a concentration of around 3 parts per billion in the Earth's crust (see Figure 2). If all the gold ever mined were to be put in one spot it would consist of a cube roughly 20 metres per side. Furthermore and equally important, the rate of gold supply growth is normally quite slow and reasonably predictable.

Gold's price behaviour

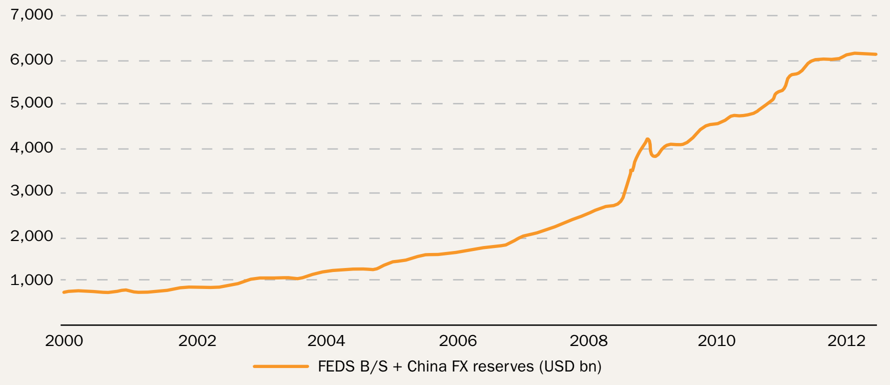
To describe it in the simplest of terms, gold's value depends in large part on the degree of 'badness' of bad money. Following on from the previous discussion this factor is significantly reliant on relative scarcity.

If bad money becomes less bad (supply growth constrained and interest rates at appropriate levels), then one would expect that the desire/incentive to hold good money becomes less obvious. Hoarding of good money would, according to theory, fall. Gold's utility in this case would decline and prices would fall relative to the US dollar; the degree of this fall would likely be determined by the required supply contraction and therefore gold production costs (this secondary pricing factor becoming more important in determining value as the primary currency element diminishes in my view).

If however, as seems to be the case currently, bad money becomes increasingly bad, then one would expect that the desire/incentive to hold good money should increase coincident with the perceived deterioration in functionality of the bad money as a currency. In short this is why the gold price has been appreciating over the past 10 years – coincident with the growing overvaluation or increased 'badness' of the US dollar.

Throughout history there has been one consistent factor which has contributed to the overvaluation of fiat currencies versus gold: excessive borrowing (often associated with war). In the past 100 years alone the US has experienced this twice: in 1934 and 1971. In 1934 the dollar was devalued by 42% versus gold and in 1971 the dollar was initially devalued by 8% and then by considerably more as the market pushed gold prices higher when inflation took hold into the late 1970s (a function of the easy monetary policy of the 1960s, war and a supply shock in oil).

Figure 3: US Fed B/S and China FX reserves



History now appears to be repeating itself with excessive borrowing resulting in a new phase of devaluation for the dollar although the current situation may be unprecedented in modern history for the breadth and scale of the value adjustment that may be necessary.

Monetary factors

I would argue that the gold price is highly price sensitive to two monetary factors: 1) excessive fiat money supply growth (ie, a rate above that justified by population and unlevered productivity growth combined); and 2) money velocity. Velocity is an important factor given the higher the money velocity (greater transactions) the greater the accuracy in the relative pricing of economic goods, particularly during environments of changing money supply. Nevertheless I attach primary importance to supply.

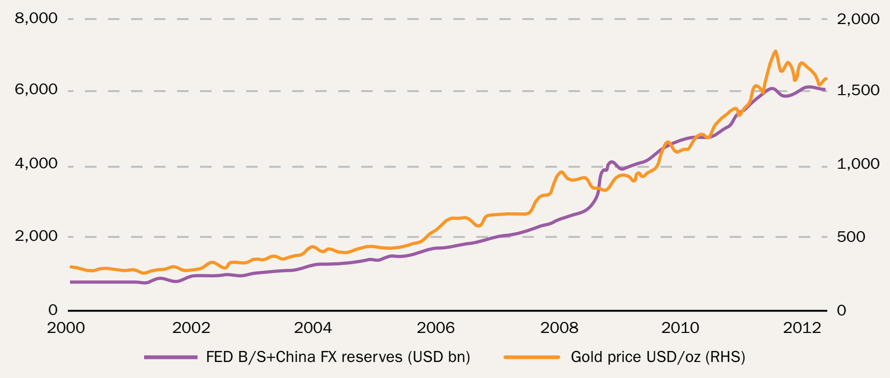
Some economists would argue that it is not sufficient to look only at money supply, that demand for money is also important. I would disagree with this assessment; money is not a production/consumption good as I have previously discussed. What is the marginal demand for money? The question itself is a non-sequitur. There is constant demand for money whatever the economic condition. The important question is how this money is used once it is acquired.

The conventional metric to view money supply is to look at M2, for both the US and China. In my view it is important to use both regions given the RMB peg, creating a kind of USD axis which dominates the global economy. Figure 3 combines the Fed balance sheet and China F/X reserves. This is a potentially superior representation of incremental money supply. Note that much of this expansion is backed by credit – credit fuelled spending by the US consumer for Chinese products resulting in increased China reserves combined with the Fed bailouts.

There may be some double counting in the combination of this data but I don't believe that it is significant.

Figure 4 below then shows the relationship between the growth in USD supply and appreciation in the gold price. By association of course I imply causation which should always be treated with caution (as Hume would advise). I previously argued however that by using historic

Figure 4: Fed B/S + China FX and Gold price



precedent excess supply can be associated with overvaluation; I make this assertion here.

Taking the ratio between the two data series I derive Figure 5. The ratio between gold and money supply remained fairly stable until late 2008, coincident with the collapse of Lehman and a peak in the intensity of the financial crisis at that time. Interestingly the expansion of the Fed balance sheet at that time actually resulted in an initial de-rating of gold against the supply of dollars. Yet this is opposite to what I have argued; instead we should have expected to see gold's price move higher coincident with the increase in supply. What happened?

> *"While I believe that the US Fed could continue to expand its balance sheet further in the future, the extent of money expansion is difficult to determine."*

Figure 6 takes this analysis a step further by including US CPI (I admit that is a poor gauge of inflation but it serves its purpose sufficiently here). In late 2009 deflation emerged in the Western economies as consumption contracted and money velocity sank. On this basis I believe that while the supply of money grew considerably, valuations in US dollar terms were impacted by the constraints on the flow of money through the economic system at the time. Much, if not all, of the new money created by the Fed went to banks which then purchased US short-term bonds. I would argue that this hoarding occurrence temporarily inversed the good/bad money dynamic between gold and the dollar. There was not increased hoarding of gold at this time as the principal beneficiaries of the increase in money supply must operate within the confines of the fiat regime and do not have the flexibility that the public and the state do.

Implications for forecasting

How does one go about forecasting gold prices? Implied in the above argument is the necessity to forecast future central bank action with respect to monetary policy, and also how additional money would subsequently flow through to the rest of the economy. The latter aspect – effectively, how will the individuals receiving this new money spend it – has important implications for inflation. In the case of 2008, the new funds were used by financial institutions to bolster their liquidity requirements, resulting in inflation in a particular asset class benefiting from such purchases: US treasuries.

In a future quantitative easing (QE) scenario the question is not only who will receive this incremental money but also, how it will be spent, given this could lead to selective price inflation with repercussions for gold price performance.

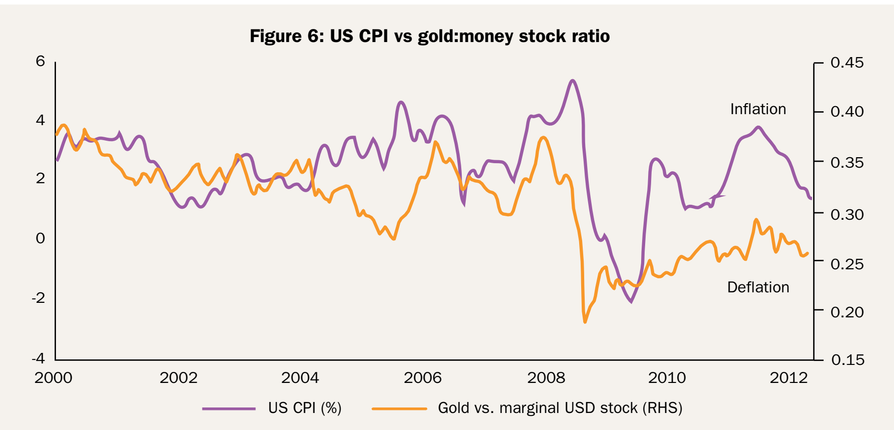
While I believe that the US Fed could continue to expand its balance sheet further in the future, the extent of money expansion is difficult to determine. But even more challenging is predicting how (or even if) this money will move through the broader economy.

For example, if the Fed were to announce a QE of a magnitude of USD1 trillion then the gold price would likely move to USD1,900/oz ±100/oz, assuming perceptions of inflation remained the same. If, however, inflationary fears escalated, a price of USD2,500/oz could be justified. In this latter scenario, I expect that this excess money would need to be more broadly distributed. It is possible that this could occur if the commercial banks which are principal beneficiaries of the Fed's balance sheet expansion in turn expanded their balance sheets to the benefit of consumers and/or corporations.

For gold to react to its maximum potential new 'bad' money needs to be created and subsequently disseminated efficiently into an economy where a sufficient frequency of transactions results in a wholesale repricing of production/consumption goods.

Daniel Brebner is Head of Metals Research at Deutsche Bank, his focus however also includes bulk materials such as iron ore and coal. Prior to joining Deutsche Bank, Daniel spent 10 years as an analyst at UBS where he held various positions, the most recent as co-head of Commodities Research. He was a geologist with Buenaventura Ingenieros in Lima Peru before working in the banking industry. Daniel has an honours BSc in Geology (University of Toronto) and an MSc in Mineral Exploration (Queen's University). He is also a CFA charterholder.

This article is extracted from previously written work published by Deutsche Bank CIB Research. The opinions or recommendations expressed in this article are those of the author and are not representative of Deutsche Bank AG as a whole. DB does not accept liability for any direct, consequential or other loss arising from reliance on this article.



Your global partner for precious metals

Active in the physical and non-physical markets for almost a century, our award winning[1] dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

– Gold, silver, platinum and palladium
– 24h global service from hubs in Switzerland, the US, Singapore and the UK
– Physical precious metals custody in our Swiss vaults
– Coins: trading, handling and storage
– Structured products and tailor-made hedging solutions
– Full range of OTC derivatives
– Gold, Silver, Platinum, Palladium ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335

Stamford: +1-203-719 1178
Singapore:* +65-6495 3757
London:* +44-207-567 6752

*non physical only

Risk & Energy Risk COMMODITY RANKINGS 2012

Intended for investment professionals only

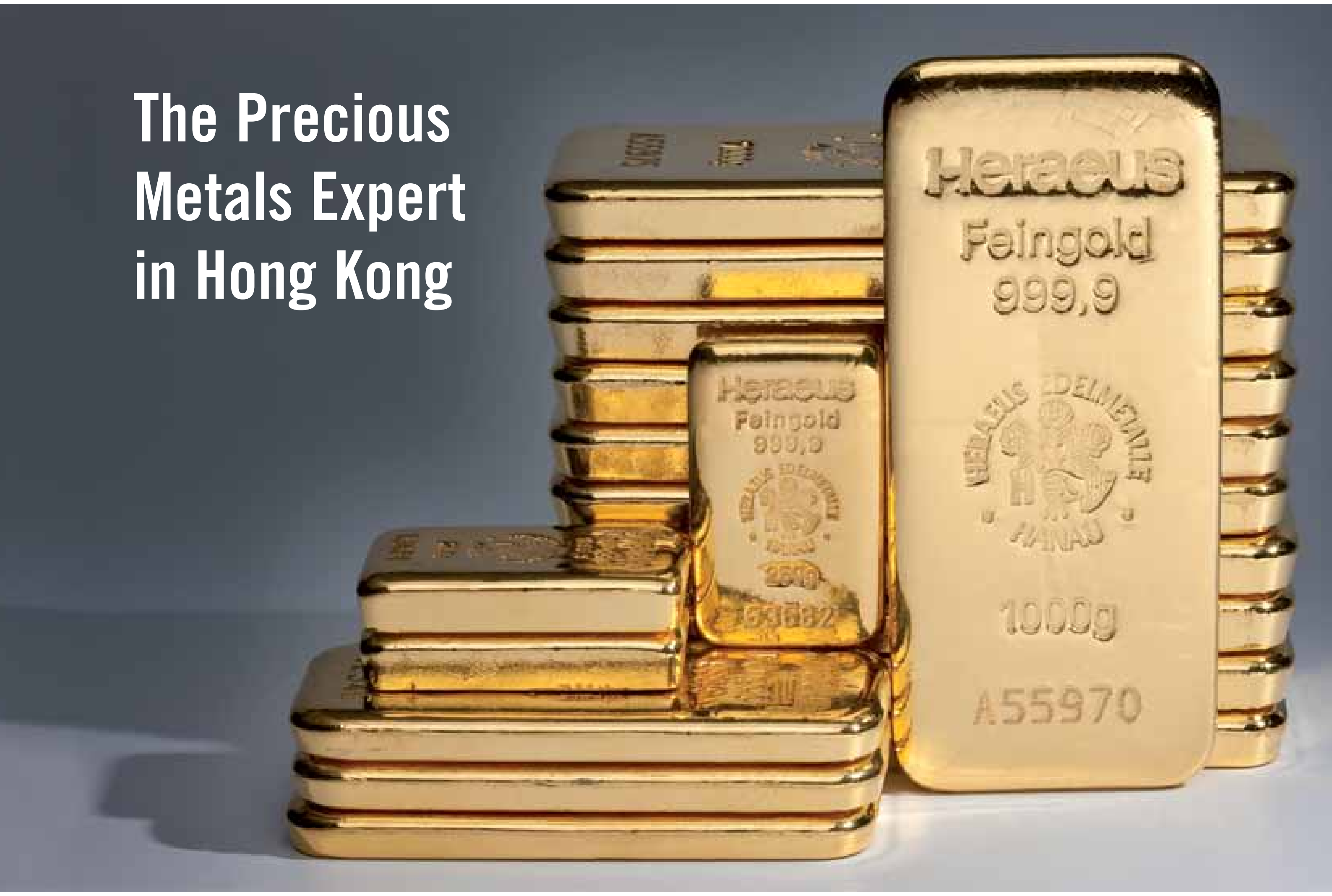
We will not rest UBS

www.ubs.com/preciousmetals

1. No.1 in Precious Metals Overall Dealers and No.1 for Research in Precious Metals, Risk and Energy Risk Commodity Rankings 2012. © UBS 2012. All rights reserved. 41687

Heraeus

The Precious Metals Expert in Hong Kong



Precious Metals Trading – Refining – Manufacturing
An entire world in just one word: Heraeus

Heraeus is active with its operations in Hong Kong for 37 years, serving Asia with refining and trading services. LBMA and LPPM accredited for all four major metals, Heraeus Hong Kong stands for quality and reliability in the precious metals business.

Heraeus has played a vital role in the precious metals world for almost 160 years, and during this time our company has earned a reputation as a leading expert and competent partner for precious metals.

Heraeus Metals Hong Kong Limited
Room 2111–2113
21/F, Peninsula Square
18 Sung On Street
Hunghom, Kowloon, Hong Kong

Phone +852 2773-1733
tradinghk@heraeus.com
www.heraeus.com.hk

Heraeus Limited
Heraeus Technology Centre
30 On Chuen Street
On Lok Tsuen
Fanling, N.T. , Hong Kong

Phone +852 2675-1261
hlh@heraeus.com
www.heraeus.com.hk

London or New York: Where Does the Gold Price Come From?

By Brian Lucey, Professor of Finance at Trinity College, Dublin, Charles Larkin, Lecturer in Economics at Cardiff Metropolitan University and Fergal O'Connor, current holder of the LBMA bursary, PhD Student at Trinity College and part-time Lecturer at Preston University

Dr Brian Lucey, Charles Larkin and Fergal O'Connor consider a number of key questions about trading activity in the gold market. They present an academic perspective to questions such as where is the gold market price made, whether one market location has a predominant influence on the others and whether the price-making process is diffused.

The gold market worldwide is itself diffuse, with trading taking place on organised exchanges in dozens of locations. And yet, it remains in many ways bipolar.

Table 1 shows the dominance of London as a trading centre for gold with 86% of business occurring there, approximately 90% of which are spot transactions. While more than eight times smaller, America's options and futures exchanges are vastly more transparent with a constant flow of prices and daily volumes; information inherently lacking in the London OTC market. And while the other main markets are growing they still account for just over 3% of turnover. Thus, analysis of the 'gold market' can be reduced, in so far as that is possible, to analysis of these two markets.

Table 1: Gold spot, futures and options trading volumes 2011

	2011 ('000 ounces)	% of Total volume
UK	43,775,704	86.75
America	4,991,604	9.89
China	697,002	1.38
India	494,547	0.98
Japan	488,502	0.97
Dubai	12,507	0.02
Total volume	50,459,865	

Source: UK data annualised from Murray (2011), all others from GFMS (2012)

From this it is clear, first, that the main markets remain London and New York and second, that it is unclear who 'leads the dance'. Although larger, the dominance of spot OTC trading in London makes its influence harder to grasp. Mere volume alone does not in and of itself make a market dominant.

This is not a phenomenon unique to gold. Equity and bond analysts have had to grapple with the issue of what market leads what for decades. There are a vast number of papers and analyses on which markets lead and which follow, at a macro level. More recently there have been advances in both economic and statistical methods that have allowed a degree of light to be shed on this issue at an individual asset level.

Consider for example 'Siamese twin' shares, where the same claim on asset is traded on two markets. Examples would include Royal Dutch-Shell or Unilever Plc/NV, or more generally cross-listed shares. Evidence is overwhelming that even when the shares should move together in a predetermined manner they do not. These shares therefore suggest that markets make prices not just on the basis of asset returns but also on the basis of some 'local' information.

If we think of gold we can imagine two spot markets, and see immediately that abstracting from travel and related costs, the price of an ounce of gold in one market should be approximately equal to the price in the other. With some modification we can see a similar argument for gold futures and gold cash markets.

Two approaches and a host of later alternatives and improvements to these have been developed to determine, statistically, the extent to which one market informs the price in another market. Hasbrouck (1995) and Gonzalo and Granger (1995) both use statistical techniques to look at a system of interrelated prices (such as the Siamese twin share prices) and to deconstruct these into what are called information shares.

They use two quite distinct approaches: the Hasbrouck (1995) methodology gives us upper and lower bounds for these shares while the Gonzalo and Granger (1995) model provides a unique level. Both rely on the concept that the prices of the two assets being investigated must share a common trend or a steady state to which they return. This is economically sensible, because if there were to be a long-term deviation from a stable relationship an arbitrage opportunity would emerge, and even without wishing to consider the market as being more than moderately efficient, such arbitrage would eventually act to bring the prices back into line. We can then, to simplify the matter considerably, consider these information shares as being the percentage of this fair or stable price that each market contributes.

We ran these models on two gold assets: the closing price of one month gold futures traded on COMEX and the London AM fix. We chose these as they are benchmark gold prices, and crucially the London AM fix always happens before COMEX closes. As such, any information that the fix conveys will, we assume, be largely incorporated into the price formation process leading to the COMEX close. Similarly the previous COMEX close price is well known and digested by the London bullion market prior to the auction that sets the fix.

We looked at the prices from January 1986 through the end of July 2012, giving more than 6,500 observations. We subdivided the data into non-overlapping windows of 100 days, approximating four months' trading. The work of Tully and Lucey (2007) suggests that shocks to the gold price decay relatively slowly, but would be well dissipated within that period.

Figures 1 and 2 on page 9 show the estimated information shares from the two methods. If we define the dominant market as being that which contributes more than 50%, then the two methods agree more than 90% of the time. The broad message, in terms of which market is dominant, is very similar across the two

approaches. For simplicity, we concentrate on the Gonzalo and Granger findings.

The initial analysis of the data does not show direct linkages to particular economic or routine political events causing switches between the London and New York markets. The transitions of prime ministers, presidents, Fed chairmen and Bank of England governors do not have any apparent impact on the switching between locations. Interestingly, changes in the Fed Funds rate and the Bank Rate of the Bank of England have no clear impact. There is a shift to the London market that coincides with the slow collapse of the Eastern Bloc beginning with the protests in the summer of 1989, which also coincided with the peak of the Japanese asset price bubble.

The interesting aspect of the 1990 switch from New York to London is that it happens around the time of the National Bureau of Economic Research (NBER) US business cycle change from expansion to contraction. The move to London remains for a series of important European political events related to the reunification of Germany, the fall of Thatcher and the move of the US business cycle towards expansion. Gulf War I does not seem to have any impact on the switching between London and New York, despite the traditional assumption that wars and other destabilising political events have profound impacts on the gold markets.

The switch back to London from New York happens again at the time of the 1992 exchange rate mechanism (ERM) crisis and the clear pressures being brought to bear on sterling. The brief switch to New York was reversed and dominance returned to London. Outside of the ERM crisis and the wave of devaluations across European monetary events, prior to the eurozone crisis, do not seem to have any impact on the switching of markets.

Global economic crises may have an impact on switching depending on their location and implied political implications. The switch from the London markets to the New York markets occurs at the start of the ruble crisis and the bailout of Long-Term Capital Management (LTCM) as opposed to the start of the Asian crisis. This may reflect the active discussions happening during the ruble crisis of the so-called ‘loose nukes’ problem that could be engendered by Russia becoming a failed state and the surprise to the US markets of the collapse of LTCM. By the time you enter the new year (and the Time magazine cover of ‘The Committee to Save the World’ has been published) the markets have switched back to London.

There is some active switching between markets between the dot-com bubble peak in March 2000 and the beginning of the dot-com bust recession in March 2001. Following the 9/11 attacks the New York market becomes dominant.

The New York market remains dominant throughout the downturn and into the expansion phase in the US economy before switching to London.

New York becomes dominant at the start of the global financial crisis just following the open concerns about US Treasury bonds. It remains dominant until August 2008. Interestingly London is dominant throughout the collapse of Lehman Brothers, with the market switching to New York only as the NBER contraction period comes to a close and the US begins its anaemic expansion. The final switch to New York in April 2011 does not seem to have been triggered by any geopolitical or economic event and must therefore be driven by the gold market itself.

The interesting aspects of the moves between New York and London are that they appear – except in examples of globally important phenomena – to be sui generis. The next question will be to try to understand, possibly via a behavioural or ethnographic study, what are the key decision triggers for gold market actors in switching the locus of ‘price maker’ from one market to another.

Figure 1: Hasbrouk Information Shares

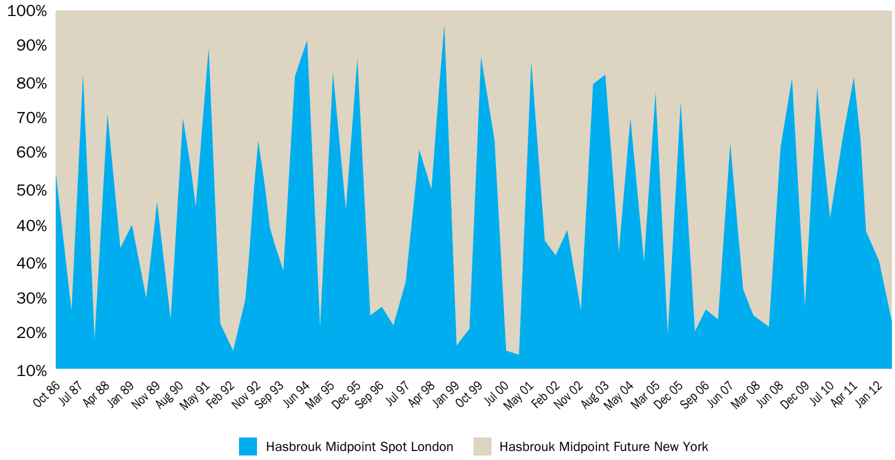
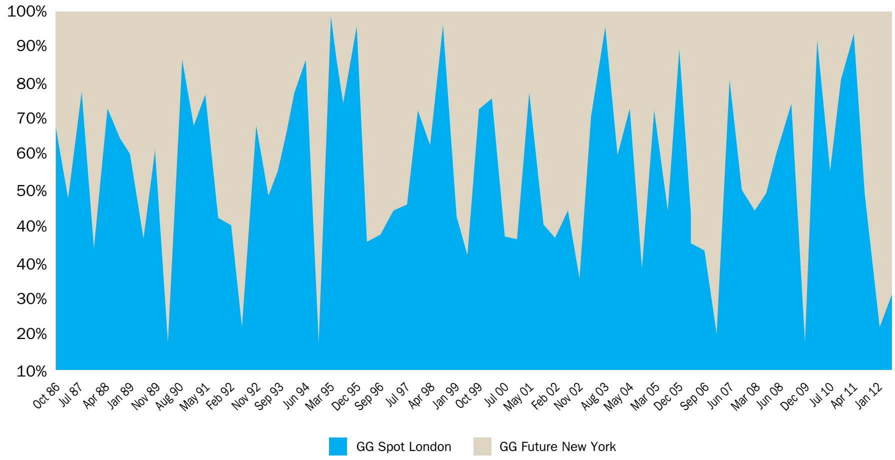


Figure 2: Gonzalo-Granger Information Shares



Dr Brian Lucey is Professor of Finance at the School of Business at Trinity College Dublin. He studied at graduate level in Canada, Ireland and Scotland, and holds a PhD from the University of Stirling. His research interests include international asset market integration and contagion; financial market efficiency, particularly as measured by calendar anomalies and the psychology of economics.

Charles Larkin is lecturer in economics at Cardiff Metropolitan University. He holds a PhD from Trinity College Dublin. He is also an advisor to members of the Irish Senate and has in the past worked for the NYPD.

Fergal O’Connor is a PhD student at Trinity College and part-time Lecturer at Preston University. He holds a MA in economics from University College Cork and is the present holder of the LBMA Bursary.

Sources:

GFMS, 2012, Gold survey 2012

Gonzalo, J, and Granger, C W J, 1995, Estimation of common long-memory components in cointegrated systems, *Journal of Business and Economic Statistics* 13, 27–35

Hasbrouck, J, 1995, One security, many markets: determining the contributions to price discovery, *Journal of Finance 50*, 1175–1199

Murray, Stuart, 2011, Loco london liquidity survey, Alchemist 63, 9–10.

Tully, E, and B M Lucey, 2007, A power garch examination of the gold market, *Research in International Business and Finance* 21, 316–325.

Visit to Malca-Amit's New Vault

By Aelred Connelly, Public Relations Officer, LBMA

Malca-Amit became a member of the LBMA in March 2012 and shortly afterwards completed the building of a new vault facility close to Heathrow airport. Stuart Playford, Emma Attridge and Aelred Connelly from the LBMA visited the facility recently. Here Aelred describes their visit.

Malca-Amit is a Hong Kong-based company established in 1963 with offices in more than 30 countries, providing a range of solutions for corporations, wealth managers, banks and high-net-worth individuals looking to source, transport and store gold, silver and other precious metals and jewellery. The new secure storage facility was opened in April 2012 near Heathrow airport to complement the vaulting facilities at other secure sites in Singapore, New York, Zurich and Bangkok.

Similar facilities are being developed at airports in Hong Kong and Beijing, and are scheduled to be completed by the end of 2012, shortly after the LBMA Conference. Plans are also afoot to double the vault space at the Singapore Freeport which will add three vaults to the two that are already in operation.

It was a balmy day when we arrived at Feltham station where we were warmly greeted by our host for the day, Allan Finn, Global Commodities Director for Malca-Amit. Allan told us that the location of the vault was top secret so he deviously drove his car round in circles until we were so disorientated we had no idea where he had taken us.

Figure 1: Silver bars being held in storage.

Figure 2: The method of warehouse racking for storing gold bars.

When we eventually arrived at our destination only the sound of planes overhead gave any indication as to where we were. That many planes could mean one of only two things: we were either near Heathrow or we were witnessing a flypast for the Queen's Jubilee celebrations. Before we went in to the building Allan explained that the perimeter fencing can withstand a 7.5-ton vehicle at 50 mph and the internal shutter anti-ram barrier which is located behind the entrance gates can withstand a 7.5-ton vehicle at 30 mph. So that's Jonah Luma thwarted then.

Built above ground, the Malca-Amit vault is one of a number of new facilities that either have been built or which will be opened shortly within the perimeter of the M25. Gold vaults are usually located within the M25 to keep transportation costs and journey times to a minimum. Proximity to an airport is an advantage. Silver can be stored in areas further away from London due to its comparatively low value.

Contrary to popular belief, the LBMA does not approve new vaults – it only approves or accredits the refiners who produce the bars which are stored in them. But the vaults in London perform a very important role as gatekeepers to ensure that the bars which are delivered into the London market meet the standards laid down by the LBMA in the Good Delivery Rules. The vaults not only physically check the quality of bars they receive, but they weigh them too.

There are lots of considerations to take into account when building a new facility, to which I am sure that Allan could testify. As well as the construction of a secure site, a vault will need high tech security equipment, a system to record bars, scales and trained staff to check and weigh them. In order to be able to weigh bars a company can apply to the LBMA for status as an 'Approved Weigher' so that they are authorised to check the weights of bars entering London for the first time on behalf of the market.
As you can imagine no chances are taken with the level of security. The thing I noticed most of all when wandering around the facility was the plethora of cameras, which seemed to take up all the available space on both the walls and ceilings. Allan explained that some have 29 megapixels (equivalent to 95 conventional cameras) which allow staff to zoom in to view the most minuscule objects or details. All images or recordings are retained for a period in excess of 90 days.

The alarm system is linked to a guaranteed police armed response unit with direct communication to the police control room. If an alarm is triggered the immediate area is automatically sealed off from the rest of the building. Doors into and out of that area will not open. So woe betide any member of staff who sets one off accidentally!

During the tour I noticed the traditional beam balance scales as well as the electronic Sartorius scales which are currently being trialled by the London vaults. But the thing that strikes you most is the vault. Allan explained that it is a Chubbsafe grade XII which offers the highest possible level of security and provides capacity for more than 300 metric tonnes of gold and 1,000 tonnes of silver. The bars themselves are stored on pallets, not your conventional wooden ones, but heavy duty capacity warehouse racking which can hold 80 gold bars on a single layer (see figure 2). This facilitates easy checking for auditors as they don't have to de-stack the bars to inspect them. Gold and silver are not the only precious items in storage: there are also diamonds and other precious stones and jewellery which are kept in storage on behalf of clients.

Our tour came to an end. Allan drove his car round in circles again until we were so disorientated that we didn't know where we had come from. But he made up for it by taking us for a nice lunch on the river at Richmond.

Bank of the Year

BARCLAYS

Barclays offers premier investment banking products and services to its clients through Barclays Bank PLC. Barclays Bank PLC is authorised and regulated by the UK Financial Services Authority and a member of the London Stock Exchange. Barclays Bank PLC is registered in England No. 1026167. Registered Office: 1 Churchill Place, London E14 5HP.

A Day in the Life of a GDL Officer

By Rebecca Adamson, Good Delivery List Officer, LBMA

Gold bars being examined at a recent bar inspection.

6.00 am
My alarm is a gentle recall back to reality.

7.00 am
After a light breakfast, I feed the cat (it's better fed than I am!) before leaving on my bike to go to the station.

8.15 am
I'm off to a bar inspection this morning so I drop into the office to collect a camera and the documents I will need and head straight to the vault.

9.00 am
Meet with the appointed bar inspectors, who are representatives of other London vaults or who sit on the Physical Committee. As is to be expected, security is always very tight when visiting the vaults. We sign in and meet the vault manager, who escorts us through several security layers before we reach the lift and down we go into the vault. We are to view a set of 11 gold bars today that have been submitted by a gold refiner who is applying for Good Delivery status. This is a standard stage of a GDL application. We must check that they correspond with the photos and technical drawings submitted previously with the application as well as ensuring that the bars meet the specifications set out in the GDL Rules. I measure the bars and take lots of photos. Following the inspection, the inspectors conclude that the bars are acceptable, which means we can proceed with the application and send the bars to be assay tested by the referees. If the bars were rejected at this stage, there would be a lot more work to be done arranging the removal of these bars from London and discussing with the PC how this application should now proceed.

9.45 am
We leave the vault and I return to the office. It's raining – it always seems to be raining when I leave this vault! Or snowing...

10.30 am
I check my emails. It's my job to facilitate all GDL applications for gold and silver accreditation, and I am the first point of contact throughout the process. An application can take around six months to complete, from submitting the first documents through to the bar testing stage and final acceptance, and has been known to last much longer than that if further information is needed. For my own interest, I once counted the action points I complete during each application – they amount to over 100 separate stages! At the moment, we have an unprecedented number of GDL applications at various stages of completion, as well as several more applicants who have approached us to indicate their interest and are just finalising their application documents. Sometimes it can be quite frustrating for refiners who would like to apply for accreditation but fail on one or two of the minimum requirements.

> *"We have an unprecedented number of GDL applications at various stages of completion."*

11.00 am
I also manage the proactive monitoring of all current Good Delivery refiners. All GD refiners are tested once every three years. We have a batch of refiners who are taking part at the moment. Each batch takes approximately two to three months in total, from preparing the initial letters of notification, through to receiving results back from the referees who have check assayed the dip samples submitted by the participants. We have received some results back from one of the referees today, so I am able to compare the assay results against those submitted by the participant. We look at the mean assay results and if the difference is outside of the acceptable range, we then start to analyse a little more closely for any disparities.

Save the date

For registration details,

write to register@dpmc.ae

2013 DUBAI PRECIOUS METALS CONFERENCE

6 - 7 April 2013, Dubai

www.dpmc.ae

11.30 am
A meeting with the Bank of England, with whom we are working closely to develop a new Vault Accreditation scheme for London vault operators. This is followed by a conference call with our design consultants, with whom we are working to upgrade the LBMA website, as well as the Visual Guide to bar defects which will assist Good Delivery refiners in understanding what is, or not, acceptable in the market.

12:30 pm
I begin to receive the completed bar inspection reports from the inspectors at this morning's visit. As soon as I have received all three, I can circulate them to the Physical Committee.

1.00 pm
I'm taking a short lunch today, because we have a Physical Committee meeting this afternoon. Our office is located behind the Royal Exchange and so there are lots of historic buildings to look at. Today I walk across the highwalk to the Barbican Centre to have a look at their current programme of shows.

1:30 pm
I have to arrange a shipment of gold reference samples to another GDL gold applicant. During Stage 1 of the technical assessment, an applicant receives a set of 24 gold reference samples for assaying. Essentially we are testing the ability of the applicant to assay to GDL standards. Assaying means that the refiner's laboratory tests the samples to determine the fineness, e.g. 999.99. They use various methods to do this, some of which have changed very little in the last several hundred years. I prepare all of the shipping documentation, including a weight list. I then ask a colleague to shadow me whilst I pack the samples to ensure that there are no errors. Once the package is ready to go, I arrange for a secure courier to collect it.

2.00 pm
I maintain the current Good Delivery lists, including the database that the vault managers use in order to view details of bars that are on the current list. I have received an email from one of the GDL refiners requesting a change to the specifications of their bar on the current list. I check that the drawing they have submitted meets all specifications and prepare it to be tabled at the meeting this afternoon.

2.30 pm
We are currently in the process of introducing new media software to store all GDL related images, which will make it easier to access and retrieve photos. I spend some time editing the catalogue. I then have a meeting with the Chief Executive of the LBMA to update him on any recent Good Delivery matters and to discuss with him the draft programme for next year's Assay and Refining Seminar.

3.00 pm
The Committee members start to arrive for the Physical Committee meeting. Agreement is reached on a number of issues that will have a direct influence on the operations of the physical London bullion market. As well as presenting several of the meeting's papers, I also produce the minutes and ensure that all action points are followed up.

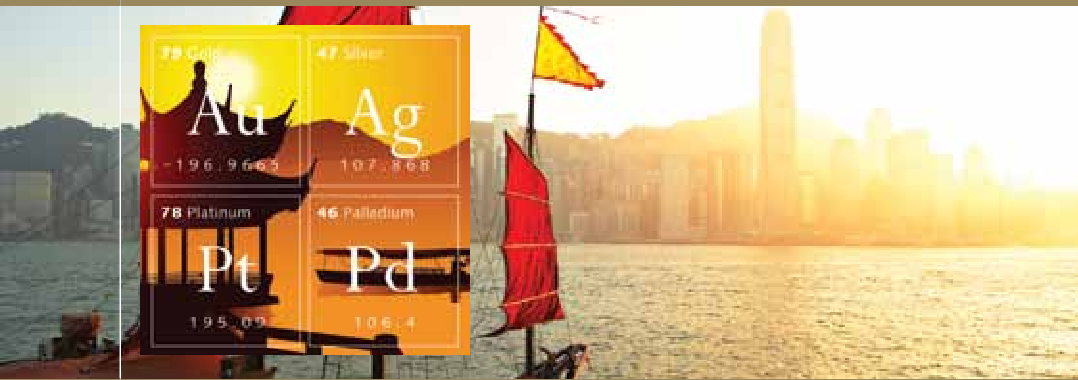
5.00 pm
I am arranging for the team to visit a GDL refinery to learn more about the refining process. I email the refinery to make some final adjustments to travel arrangements and to find out what we should wear – most refineries are quite specific about what you can and can't take with you – mobile phones and cameras are often off limits and some don't allow you to wear any metal at all (better have that gold filling removed!).

5.30 pm
Time to leave. I put my handwritten notes of today's meeting in my intray ready for me to write up first thing tomorrow.

Rebecca Adamson
GDL Officer, LBMA
Rebecca is the LBMA's GDL Officer, and is primarily responsible for the administration of the LBMA Good Delivery System, including applications and Proactive Monitoring. Rebecca joined the Executive in 2010, having previously worked as a consultant to the LBMA since 2008.

The LBMA/LPPM Precious Metals Conference 2012

11-13 November
Grand Hyatt Hotel
Hong Kong



The London Bullion Market Association
1-2 Royal Exchange Buildings
London EC3V 3LF
t. +44 (0)20 7796 3067
f. +44 (0)20 7283 0030
conference@lbma.org.uk
www.lbma.org.uk

Why You Should Attend This Conference

An excellent programme of high quality speakers will be providing their unique insight into the major issues affecting the Precious Metals markets. Speaker highlights include Xie Duo, General Director of the People's Bank of China; Professor Yu Yongding, from the Institute of World Economics; Jamie Sokalsky, CEO of Barrick Gold Corporation and Marc Faber, editor and publisher of the "Gloom, Boom & Doom Report".

Central Bankers... Dealers... Producers... Fabricators... Refiners... Brokers... Analysts... Marketers. There's a place for all market players at the LBMA (LPPM) Conference. Make sure to reserve yours.

LBMA

LPPM
LONDON PLATINUM & PALLADIUM MARKET


Your Global Partner
for precious metals
NADİR METAL RAFİNERİ
İstanbul
Refining, Recycling, Recovery and
Gold, Silver Bars & Coins in Gram Sizes
Au
Gold
196,97
Ag
Silver
107,87
Pt
Platinum
195,08
Pd
Palladium
106,42
LBMA
Istanbul Gold Exchange
DMCC
DUBAI MULTI COMMODITIES CENTRE
THE SILVER INSTITUTE
A Worldwide Association of Silver Miners, Refiners, Fabricators & Manufacturers
www.nadirmetal.com.tr
ISTANBUL / TURKIYE

The Year of the Dragon is as good as gold

Strength, Stability and Service.

2012 ushered in the Year of the Dragon, the most auspicious sign in the Chinese lunar calendar. The Toronto Dominion Bank opened its first branch in 1856 – another Year of the Dragon. Those born in the Year of the Dragon are considered to be strong, stable, and dedicated to service. Whether it's serendipity or coincidence, we believe we share some of the characteristics of those born in this prosperous year.

Canadian-based TD has been recognized as one of the strongest[1] and safest[2] financial institutions in the world. We are the only Aaa rated commercial bank in the bullion market, and the dedicated team of professionals in our Global Precious Metals Group have a proven track record of delivering tailor-made solutions to fit clients' individual needs.

In dragon-like fashion, we consistently strive to create value for our clients and help them achieve their goals… whatever their sign.

2012 also marks the silver anniversary of The London Bullion Market Association. TD extends its congratulations to the LBMA on achieving this significant milestone.

Contact one of our global offices:

New York
T: +1 212 827 7866
gpm.ny@tdsecurities.com

London, UK
T: +44 (0) 20 7997 1932
gpm.london@tdsecurities.com

Singapore
T: +65 6500 8022
gpm.singapore@tdsecurities.com

TD

1. Bloomberg Markets (June, 2012). 2. Global Finance Magazine (March, 2012). TD Securities is a trademark of The Toronto-Dominion Bank representing TD Securities Inc., TD Securities (USA) LLC, TD Securities Limited and certain corporate and investment banking activities of The Toronto-Dominion Bank. ®/The TD logo and other trade-marks are the property of The Toronto-Dominion Bank or a wholly-owned subsidiary, in Canada and/or other countries.

The Silver Anniversary of the LBMA

By Robert Guy, the Founder Chairman of the LBMA

Robert Guy (seated left) with the current Chairman of the LBMA, David Gornall.

To mark the silver anniversary of the LBMA, the very first chairman, Robert Guy, looks back with affection at the events which led to the formation of the LBMA in 1987.

This was not going to be the easiest meeting. It was October 1974. My boss at Rothschild's dealing room had just resigned and the bank had chosen me to be his successor. This affected not only Rothschild, but also the London Gold Market. Rothschild had chaired the Gold Fixing since it started in 1919, and had been broker to the Bank of England for more than a century. I was on my way to chair a meeting of the other members of the Fixing: Samuel Montagu, Mocatta and Goldsmid, Sharps Pixley and Johnson Matthey. Or was I? There was no alternative but to open the meeting by asking my new colleagues: "Is it your wish that Rothschild should continue to act as chairman of the Fixing?"

They knew that my dealing experience was in foreign exchange, not bullion, and I knew that my peer group was up to 20 years older than I (a mere child at 30) and that they had recently discussed the possibility of the chairmanship being rotated. Was I out of a job before I had even started?

Fortunately for me, although it was not with the greatest show of enthusiasm, the other members gave their consent that day in 1974 and I continued to chair the meetings. But only until 1993!

In those early days there was certainly a great deal to concern us. We were struggling to regain a portion of the gold sold by the South African Reserve Bank (at that time South Africa produced around 1,000 tonnes a year, now down to around 200 tonnes) which we lost completely when the British government closed the gold market for two weeks in 1968. We were also facing the threat of new competition from the US futures market, due to open in January 1975. We were beginning to take advantage of the liberalisation of the market in Hong Kong where we opened new trading subsidiaries. But the going was tough.

Gradually things got better. More subsidiaries followed in Singapore, New York and Sydney. The IMF and US Treasury gold auctions, far from depressing the gold price, stimulated fresh investor demand. Central banks returned to the market (as buyers). Gold production rose. Turnover increased and so did profits. London was back. Some years later the head of the Soviet Union central bank asked me how we had planned our recovery – no surprise in such a question from a country which lived (and died) by its five-year plans.

> *"The IMF and US Treasury gold auctions, far from depressing the gold price, stimulated fresh investor demand."*

But, in truth, it was not planned. Apart from the external factors, I think the success of those years can be attributed to ethos and competition. The five firms were extremely competitive and watched each other's activities like hawks. But, at the same time, they knew the importance of working together.

And that is why, whatever the state of the market, they would meet, in turn, in each other's offices, at 4pm on a Wednesday afternoon every month. Naturally we began with tea and biscuits; an hour or so later the waiter would appear with the drinks trolley.

We were an eclectic bunch. The group included Guy Field of Samuel Montagu (at that time the leading house in the market), French émigré, brought up in Liverpool, with an idiosyncratic turn of English phrase – "Don't make my goat boil" – and his young assistant, my longstanding friend Robert Beale (a fellow historian, albeit from Cambridge). There was Keith Smith of Mocatta and Goldsmid, the oldest firm in the market, for whom he had worked, man and boy, save for National Service in the RAF, and Jack Spall of Sharps Pixley, father of Jonathan (now at Barclays Capital), who, unusually for the market (but to its benefit) started his city career in the softs market and had been a broker with Merrill Lynch. Irascible might be the word for some of them; goodness knows what their word was for me.

There were occasionally some unusual issues to address (were the bars from North Korea radio active? Had the makers of counterfeit sovereigns in Beirut been working overtime?) but a typical agenda at the meetings of the fixing members would include performance at the Fixing and market making throughout the day; clearing and good delivery; imminent legislation in the UK and the EEC; VAT. And indeed all those other similar issues which face the LBMA today. Except there was no LBMA: no central secretariat. We split the work between ourselves and colleagues in our respective firms. The Bank of England did not attend our meetings but I regularly reported to it on developments. ("I expect my broker to keep me informed," said one official when I had forgotten to do so. Oh!)

One issue that we had particular need to discuss with the Bank was the application of Derby and Co (to which Guy Field had moved) to become a member of the Fixing. The Bank had granted Derby the status of 'authorised dealer' – a necessary qualification to deal in gold in the days of exchange control – and now the company wanted to enhance its status further.

What did the Bank of England itself think? "It's not within my gift" came the official reply, and Derby was denied. But later, by which time he was at JP Morgan, Guy ("too many Guys?" asked one distinguished commentator) made a very significant contribution to the creation of the LBMA, particularly in the drafting of the constitution.

The early 1980s, the rise to the then record price of $850, the explosion of western investor demand, the dramatic dishoarding from Asia, the birth of bullion banking (as we then called mine finance) – these were indeed good years for the market. As a result, a number of foreign banks sought to open their own bullion trading rooms in London – Morgan Guaranty, Credit Suisse and Nova Scotia among the earliest. Negotiations with Customs and Excise resulted in their becoming associate members of the market, which meant that their wholesale trades could benefit from exemption from VAT under the Terminal Markets Order. They were in the 'Black Box'. Yes, this meant more competition but at the same time it only enhanced the position of London in the international market. That's why we had an 'open door' policy.

In retrospect, we then got a bit carried away. After much debate and protracted discussions with the London Metal Exchange (LME), in 1982 representatives from the gold market formed their own company, the London Gold Market Ltd, which became joint owner with the LME of the London Gold Futures Market (LGFM). A trading floor was built in Plantation House and the shareholders, particularly the members of the Fixing, provided good order flow and price support. The Achilles heel, however, was the lack of domestic investor and speculator interest, without which no futures market can survive and, following an excellent report by John Wolff, the market closed within three years.

(There was a useful side-benefit from the closure of the LGFM. The market, as an entity, had enjoyed the benefit of the Terminal Markets Order and, on its closure, we negotiated with Customs and Excise the right of individual companies to become, if they so wished, associate members of the London Gold Market. The majority did so.)

In the early days of the LGFM it appeared that solid progress was being made. The marketplace generally was relatively quiet, not as exciting as earlier in the decade, but there did not seem much to worry about.

And then came the collapse of Johnson Matthey.

On Friday September 28, 1984, I flew back from Washington where I had been attending the annual meeting of the IMF. Bleary-eyed, I arrived back home in Kew on Saturday morning to be greeted by my wife Diana (a constant source of support throughout my career) with the words: “The deputy governor of the Bank of England has just rung. He wants to speak to you. But don’t ring him, he’ll ring you.”

The hours passed. I had no idea what this was about. I tried to ring my closest and most trusted colleague at Rothschild but without success. Eventually the deputy governor did indeed ring. ‘Opaque’ is, I think, the right word (and in the circumstances totally understandable) but the instruction was quite clear. I had to contact the other four members of the market and tell them to meet (accompanied by a colleague who could ‘deliver’) at the Bank of England at 9am on Sunday morning.

Easier said than done – I didn’t have all their home telephone numbers. (You didn’t in those days and, of course, there were no mobiles.) I surprised one member by suddenly and surreptitiously (another banker lived next door) appearing on his doorstep in a Chelsea square. Another I tracked down via a phone call to a pub in deepest Surrey. High drama is often accompanied by moments of sheer farce.

The simple fact of the matter was that Johnson Matthey Bankers, a Recognised Bank and supervised as such by the Bank of England, was insolvent. The cause was not JMB’s bullion trading activities but the bank’s commercial loan book. The exposure of the Fixing members to JMB was small and manageable – we had strict trading limits on each other which varied according to our relative size – but many international banks were not as prudent and had very high exposures. JMB’s failure, in my view, would threaten the whole London market, rebound very badly on the city and be particularly damaging to the Bank of England.

The full story of what happened over the next 24 hours will not be told until the Bank releases the relevant papers, but the outcome was that at 8:30 on the Monday morning the Bank announced that it had bought JMB.

> *“If today’s members of the LBMA look through the minutes of the early AGMs they will recognise many subjects which concern them now.”*

The Fixing took place, as usual, two hours later with the representative of JMB at his desk. JMB was eventually sold to Mase Westpac (which bought it only on condition that it was invited to join the Fixing) in June 1986.

Other changes were well underway by then, however. Work had already started at the Treasury on the drafting of the Financial Services Bill which led to the creation of the Securities Investment Board and the various self-regulating organisations which were later subsumed by the Financial Services Authority. (The story continues!) The members of the gold market were already concerned about the possible repercussions this would have for them.

Much more important for us, however, the Treasury, headed by a very angry Chancellor of the Exchequer (Nigel Lawson) was demanding a new approach to banking supervision following the JMB debacle. Nobody had sought his views on the rescue plan for JMB and he was not pleased. Something must be done. And, dreadful phrase, lessons must be learned.

The eventual outcome was that the Bank assumed formal supervision of the foreign exchange and bullion markets. Discussions took place with the Bank which now needed a formal body to represent the bullion market. A small group of associate members drafted their own proposals and came to discuss them. Our response was that they were pushing at an open door. The gold market had to take account of the new responsibilities of the Bank and it recognised that the market as a whole was suffering from a democratic deficit. The open door policy, our creation of associate members, had proved so successful that there were now more than 50 of them. Liaison was proving increasingly onerous and time-consuming. In October 1986 I wrote to all the associate members informing them that I had “been asked by the Bank of England to give some thought to the organisation of the market in the light of the forthcoming enactment of the Financial Services Bill”. I then formed a steering committee (drawn from associates as well as members) to assist the Bank in its drafting of a Code of Conduct. In February 1987 I wrote again to everyone: “We are now turning our minds to the creation and constitution of the London Bullion Market Association” and invited all to give us their views. The LBMA was incorporated on December 14, 1987, and we held the first Extraordinary General Meeting on May 12, 1988.

If today’s members of the LBMA look through the minutes of the early AGMs they will recognise many subjects which concern them now, just as they did the old gold market. But I perceive a greater professionalism and innovation, which reflect the strong commitment of a large number of people.

The clearing arrangements were revamped. Standard terms and conditions were published, guidelines on options were produced. Building on the initiative of a number of dealing rooms (Martin Stokes of JP Morgan and John Bishop of Rothschild to the fore), the LBMA took responsibility for developing the Gold Forward Offered Rate (GOFO), which did much to help develop mine finance. A new market agreement was made with Customs and Excise.

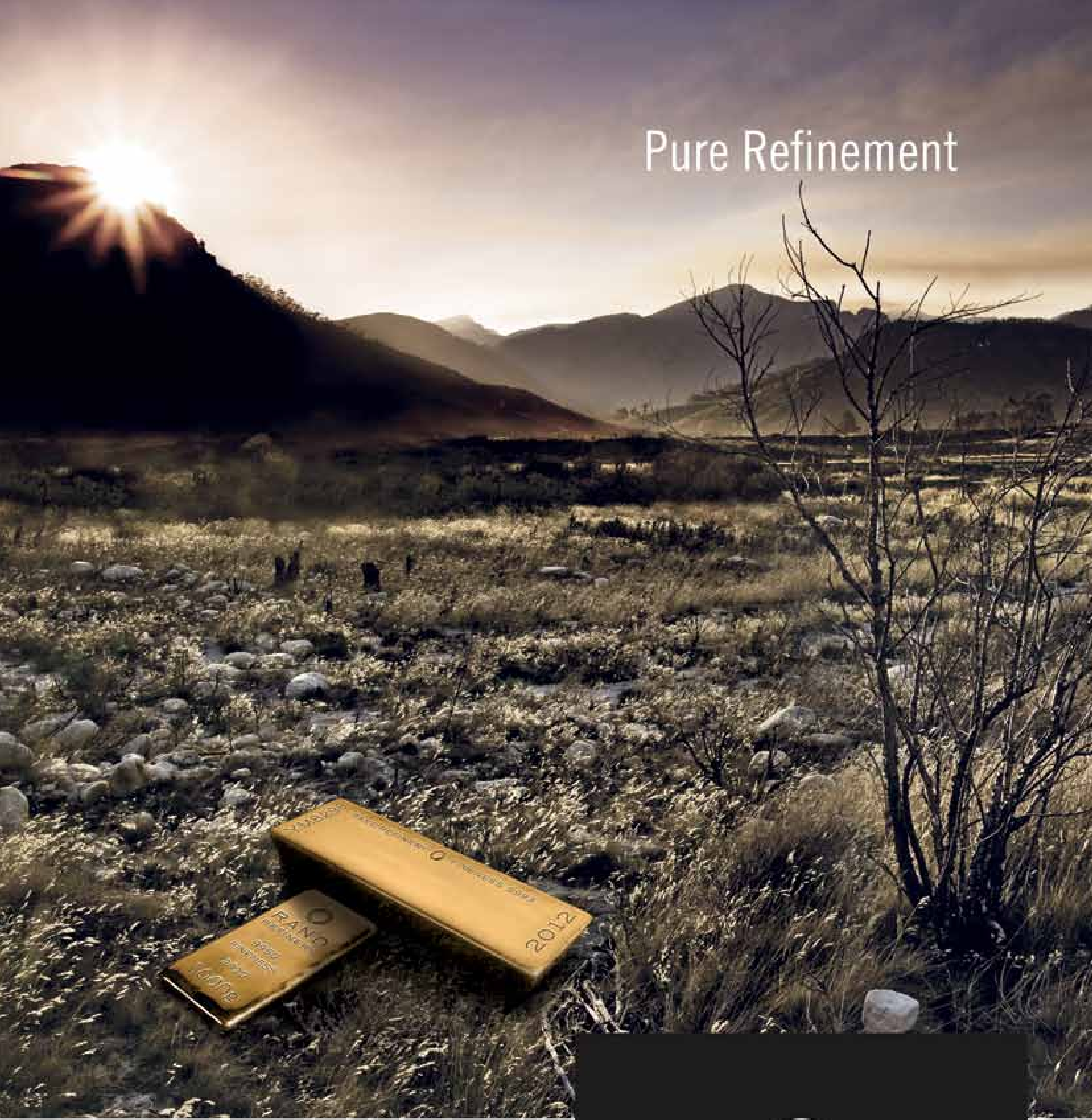
A public relations firm was hired and a newsletter published; it was nowhere near the standard of *the Alchemist* but at least it was a start. In it we were able to announce victory in a battle with Brussels. The EEC wanted us to go metric. We wanted to keep the troy ounce. Together with the Bank of England and the refining industry we won the day. The troy ounce was saved.

There were few arguments and a strong collegiate approach prevailed. I was particularly pleased that we kept to our original ambition and supported charitable causes such as the provision of a bursary for students from the developing world at Imperial College and the Camborne School of Mines.

We opened an office in Fredericks Place and for the first time we had an executive secretary, Inga Brereton, to support us. We tried hard not to be over-bureaucratic and to keep our costs down but it’s fair to say that we did not have the vast number of regulations, domestic and international, with which those in the market today now have to deal. As a regular reader of *the Alchemist*, I cannot fail to be impressed by the range of activities which are now undertaken.

Looking back at my time in the City and at Rothschild, I have many good memories. But my greatest satisfaction is in being one of those who created the LBMA in 1987 and I send my warmest congratulations to all of you on making it such a success today.

Robert Guy, was the Founder Chairman of the LBMA.
He read history at Balliol College, Oxford and joined N.M. Rothschild and Sons in 1967. He was a member of the Main Board for 26 years and, following his retirement in 2003 was a Non-Executive Director of the Royal Mint. He and his wife, Diana, now divide their time between Kew and Provence and their grandchildren in Sussex and New Orleans.



Rand Refinery is the world's largest single site gold refining and smelting complex. Our diverse range of industry leading services includes smelting, refining and fabrication. As the only LBMA referee in the southern hemisphere, we are able to deliver ethical, responsible and cost-effective solutions to a growing list of global clients. So whatever your gold related business needs are, you can rest assured that we have the experience and expertise required to turn your vision into reality.

RAND REFINERY

Our Vision: Providing access to wealth across the world, through sustainable integrated metals management

www.randrefinery.com

The original. Redefined.

Britannia has always offered beauty and reliability. Now it also gives you 0.9999 purity.

The legendary figure of Britannia has symbolised Britain's strength and integrity on coinage since Roman times. Little wonder then that the Britannia, with such a depth of history behind it, has been a popular choice with bullion investors ever since its introduction in 1987.

The Royal Mint, the home of UK coins for over 1,000 years and today trusted with the currency of over 60 countries worldwide, is proud to announce that Britannia's tradition and integrity is given new life for today's investment customer. We have made Britannia stronger than ever, increasing the purity to 0.9999 gold and 0.999 silver.

This new specification for Britannia, combined with the unimpeachable quality of the Sovereign, one of the world's oldest and most widely traded bullion coins, ensures that The Royal Mint's complete bullion portfolio now offers history, integrity and purity in equal measure.

To learn more about our bullion portfolio and services, please contact Nick Bowkett, Royal Mint Bullion Manager on +44 (0) 1443 623111
Nick.Bowkett@royalmint.com

The Royal Mint

The Growing and Evolving Gold Retail Investment Market in China

By Albert L.H. Cheng, Managing Director, Far East, World Gold Council

Even with an uncertain global economic recovery, China's gold market remains resilient and promising, as Albert Cheng, Managing Director, Far East, World Gold Council, reports.

The World Gold Council's 2012 Q2 *Gold Demand Trends* report puts China's gold jewellery and investment half-year demand at 400.1 tonnes, making it increasingly likely that China will overtake India to become the largest consumer of gold.

China's gold retail investment market has tripled in size since the establishment of the Shanghai Gold Exchange (SGE) 10 years ago in 2002, with ongoing growth suggesting that the country will remain a major player in the international gold market.

Golden tradition jolted by modern history

China has been infatuated with gold for thousands of years. This auspicious element has always been associated with Imperial China and represented good fortune. Shanghai also has a particular history with gold: in the 1930s and 1940s, Shanghai was already a renowned financial centre in the Far East and was home to the largest gold trading centre in the region.

In the new Chinese republic, the government decided gold was an important strategic resource and assumed management of it. In 1950, the People's Bank of China introduced measures to control gold and silver trading. In 1983, the State Council issued new regulations that placed the control of all purchasing and distribution of gold and silver under the central government.

Two decades passed before controls on the domestic gold market were loosened. On October 30, 2002, SGE was opened as part of a range of market-oriented financial reforms. The World Gold Council played an important role by sharing expertise and knowledge in the formation of this spot exchange gold market in China[1].

In 2004, China classified gold for investment and permitted individuals to invest in the precious metal. In late 2005, the SGE and the Shanghai branch of the Industrial and Commercial Bank of China (ICBC) launched the *Jinhangjia*, a spot trading product for private investors, thereby accelerating the development of China's retail gold market. In December 2006, with marketing support from the World Gold Council, China Gold Group issued its first two-way trading gold bullion product – the China Gold Investment Bar – traded at the prices listed on the SGE with a tight margin for domestic investors.

Since the Shanghai Futures Exchange (SHFE) launched the gold future in January 2008, gold futures trading volume has significantly increased; in 2011 alone 14.4 million contracts were traded. This gold futures market together with the spot trading of SGE form the basis of the Chinese gold market.

A ripening retail investment market

In the recent context of rising inflation, stagnation in domestic equities and government attempts to curtail a real estate bubble, individuals are exploring other alternatives to preserve their wealth. Gold is becoming an increasingly popular investment vehicle and the industry is responding rapidly by introducing more gold-related financial products.

> *“China's gold retail investment market has tripled in size since the establishment of the Shanghai Gold Exchange (SGE) 10 years ago in 2002.”*

In our survey[2] conducted in February 2012, 57% of the 1,407 interviewed investors had gold as an investment at that time, and 71% planned to invest in gold during the coming year. Around 70% of existing gold investors found gold investment to be the preferred investment to achieve both capital appreciation and wealth preservation, which were the two most prominent investment drivers. Not surprisingly, investment demand in China is growing at a staggering rate: 117% [3] since 2007.

1 World Gold Council commissioned reports from renowned think tanks in China in 1999 and 2000 with the blessings of the Peoples' Bank of China to understand international practices and the benefits and practicalities of opening the gold market for its financial institutions. These two reports continue to serve as a major reference for Chinese decision-makers.

2 WGC commissioned Ipsos to conduct a survey to investigate the investment behaviour with emphasis on gold in February 2012.

3 Growth rate is based on change of full year investment demand in China from December 2007 to December 2011.

Major commercial banks, investment firms and gold jewellery companies are the primary sellers of investment gold products specifically for Chinese investors. The likes of ICBC's *Ruyijin*, China Construction Bank's *Longdingjin* and China Gold Group's *Investment Gold Bullion* are investment bars priced at a small premium to SGE's quotes and they are sold across a broad network of bank branches and outlets across the country.

> *“Against the backdrop of a global economic downturn, the longer-term growth of China's economy remains healthy, supported by the continual income growth of an emerging middle-income class.”*

Observing the rapid development of the China gold market, the World Gold Council formed a strategic partnership with ICBC to develop a specific gold investment product to echo investors' needs, while stimulating new demand. In December 2009, the World Gold Council and ICBC launched China's first Gold Accumulation Plan (ICBC GAP) catering to investors who want to accumulate gold on a daily basis over a long investment horizon. ICBC GAP has been a huge success. As of June 2012, ICBC GAP has achieved sales of 15 tonnes in half a year and accumulated 4.2 million accounts since its launch, exceeding many expectations and prompting other banks to introduce similar products.

The success can be attributed to two main factors. Undeniably, the market is going through a high growth stage. An equally important element of success lies in its product design. ICBC GAP is designed to answer investors' needs to handle the often difficult market timing decision. The product won the 2011 Shanghai Financial Innovation Award conferred by Shanghai municipality. In addition, ICBC and the World Gold Council have been very active in advocating the long-term strategic asset allocation of gold to support market education.

Taking its rightful place in the gold market

In the last 10 years, China has emerged as both the largest consumer and the largest producer of gold. Building on this foundation, we believe the retail gold market will continue its expansion under the favourable conditions of continual income growth, widening retail reach via commercial banks and product proliferation under market liberalisation.

Against the backdrop of a global economic downturn, the longer-term growth of China's economy remains healthy, supported by the continual income growth of an emerging middle-income class. *China Consumer Daily*, a popular newspaper, forecast that by 2015, China would have 75 million families, up from 15 million in 2005, with an annual income averaging US$4,300. Household savings are expected to triple in the same period.

Under such a scenario, investment as well as gold products will benefit. In the survey referenced earlier, 71% of the respondents voted to include gold in their portfolio allocation in the coming one year; gold also overtook equity as the top choice by investors.

Of all the retail channels currently available in China, banks represent the principal avenue. Commercial banks have responded to increasing demand for gold by developing resources and capabilities for physical gold, trading, financial and wealth management as well as reinforcing internal controls and risk management. New gold-related products are constantly placed on the market and distributed throughout the Big Four Chinese commercial banks' extensive networks, which by the end of 2011 exceeded 50,000.

Some of the large and medium-sized banks have begun specialising in the gold business by establishing precious metals subsidiaries and franchises. Banks with branch network advantage will dominate the distribution of retail investment products. As the bullion business continues to develop, banks will build a broad range of gold products tailored to different investor needs.

> *“China has the foundation, means and will to achieve its aspirations. To enhance the process of this development, the World Gold Council will continue its initiatives in market liberalisation, product and channel development as well as investors' education.”*

In August 2010, the People's Bank of China, the National Development and Reform Commission and China's Securities Regulatory Commission co-authored a report entitled *Opinions on Promoting the Development of the Gold Market*, which set out the blueprint for the further development of the gold market in China. Following the announcement, we saw numerous examples of government initiatives to support the development of the gold market.

In January 2012, the National Development and Reform Commission released *The Development of Shanghai as Financial Centre in the Period of the 12th Five-Year Plan* and set a target to maintain world number one ranking in gold trading. In January 2011, the Shanghai municipal government announced plans to launch a gold exchange-traded fund (ETF) on the Shanghai Stock Exchange in collaboration with the SGE. In August 2012, the SGE and Foreign Exchange Trading Center had moved forward with interbank over-the-counter (OTC) gold trading as part of broader reforms to modernise the sector.

These steps are part of China's ambitions to become a major gold trading centre on a par with London and New York. This is also the natural evolution of the market as increasingly sophisticated investors look for the right product structure for gold allocation. This will ultimately support the growth of the institutional gold market in China.

China has the foundation, means and will to achieve its aspirations. To enhance the process of this development, the World Gold Council will continue its initiatives in market liberalisation, product and channel development as well as investors' education. By unleashing this potential, we see universal gold recognition in this market going forward and we anticipate that the annual investment demand will show a tremendous increase and exceed 600 tonnes by 2016. This road is indeed paved with golden bricks.

Albert L. H. Cheng, Managing Director, Far East, World Gold Council

Albert Cheng joined the World Gold Council, Singapore regional office in March 1993 as a Regional Manager, Planning and Business Development, Far East, becoming Managing Director, Far East in 2003 with responsibility for operations in the entire region.

Prior to his many years in gold marketing, he was with Dentsu, Young and Rubicam, Hong Kong in the early 80's, where he was responsible for a number of popular and durable consumer products. He was Account Director when he left.

His career in gold marketing began in July, 1985 when he joined the Royal Canadian Mint as the Regional Manager in charge of sales & marketing in the Asia Pacific region.

Mr. Cheng is widely consulted on the development of the gold markets in Asia throughout the past 27 years with both the Royal Canadian Mint and World Gold Council. He is one of the international advisors of the Shanghai Gold Exchange.

A graduate of the Chinese University of Hong Kong, Mr. Cheng holds a degree in Business Administration with a major in Marketing.

METALS | AGRICULTURE | ENERGY | FX | EQUITIES | INTEREST RATES | WEATHER

Where the World Trades Gold

The importance of gold in the global markets, combined with its responsiveness to world events, have made our COMEX Gold Futures and Options contracts accepted around the world. They are used extensively as a hedge against inflation, and they provide a safe haven in times of financial uncertainty. These contracts are available on the CME Globex electronic trading platform, on the trading floor in New York and for over-the-counter (OTC) clearing through CME ClearPort. Our benchmark 100-oz. Gold Futures contract is complemented by 50-oz. e-miNY and 10-oz. e-micro contracts, as well as a cleared-only solution for OTC London Gold Forwards. Referenced the world over, these contracts provide market users with liquidity, ease of access and unparalleled price transparency.

For more information on our suite of Gold products, please contact Michelle Zhang, **michelle.zhang@cmegroup.com**, or visit **cmegroup.com/metals**.

How the world advances

CME Group

DIARY OF EVENTS 2012-2013

OCTOBER 2012

25-26
The Silver Summit
Spokane, USA
The Davenport Hotel
www.cambridgehouse.com

NOVEMBER 2012

2-3
International Precious Metals
& Commodities Show
Olympiapark, Munich, Germany
www.edelmetallmesse.com/en/
index.html/

9
World Gold Mining Forum
Park Hyatt,
Toronto, Canada
www.worldgoldminingforum.com

11-13
LBMA /LPPM Precious Metals
Conference
Grand Hyatt Hotel
Hong Kong, China
www.lbma.org.uk

12-13
MEI Precious Metals 2012
Cape Town,
South Africa
www.min-eng.com/
preciousmetals12/index.html

22
8th Heraeus Precious Metals
Forum
Hanau, Germany

DECEMBER 2012

5-7
7th China Gold & Precious Metals
Summit
Shanghai, China
www.chinagoldsummit.com

10
LBMA Silver Anniversary Dinner
(For Members, Associates and
Invited Guests)
Mansion House
London, UK
www.lbma.org.uk

APRIL 2013

6-7
Dubai Precious Metals
Conference 2013
Dubai, United Arab Emirates
www.dpmc.ae/

16-19
Denver Gold European Gold
Forum 2013
Zurich, Switzerland
www.denvergold.org/gold-forums/
egf-2013

MAY 2013

13
Johnson Matthey Platinum 2013
Launch
London, UK

AUGUST 2013

5-7
Diggers & Dealers Forum 2013
Kalgoorlie, Australia
www.diggersndealers.com.au/

SEPTEMBER 2013

22-25
Denver Gold Forum 2013
Hyatt Regency, Denver, CO, USA
www.denvergold.org/gold-forums/

26-29
World Gold 2013
Hilton Brisbane, Queensland,
Australia
www.ausimm.com.au/
worldgold2013/

OCTOBER 2013

7-10
LME Week 2013
London, UK
www.lme.com/lmeweek.asp

27-31
Conference of Metallurgists 2013
Québec, Canada
www.metsoc.org/com2013.asp

Regulation Update

By Ruth Crowell, Deputy Chief Executive, LBMA

Industry organisations announce cross-recognition of gold refiner audits

In September, the LBMA, EICC-GeSI and RJC announced their mutual cross-recognition of gold refiner due diligence audits. The cross-recognition means audit efficiency for gold refiners as well as the industry as a whole. All three organisations have developed audit and certification programmes that aim to increase conflict-related due diligence and responsible practices in the gold supply chain for their respective sectors.

All three programmes focus on independent third party audits of refiners' due diligence in compliance with the OECD Due Diligence Guidance, which recognises refiners as a key "choke point" in the gold supply chain. The SEC final rules for conflict minerals (Dodd-Frank Section 1502) also indicate that manufacturers can meet US requirements by relying on refiners who have been certified by "industry groups' 'conflict-free' designation programmes" such as those of the EICC-GeSI, LBMA and RJC. While all three programmes have common features, each of these programmes are tailored to serve their specific supply chains.

In practical terms, this recognition means if a refiner goes through any of the three auditing processes, all three organisations will recognise this audit as meeting the conflict-free audit requirements. For example, if a refiner passes an RJC or LBMA audit, this process will not have to be repeated for EICC to recognise them as conflict-free and vice versa. However fulfilling EICC-GeSI requirements only meets the LBMA & RJC conflict-free audit requirements to avoid duplication. There are additional requirements for refiners to achieve LBMA & RJC certification.

	LBMA	RJC	CFS
Common features: Third party audit, OECD DDG & SEC compliance			
Tailored focus	London Bullion Market	Jewellery supply chain – mine to retail	Manufacturers
Audit outcome	Continued Good Delivery accreditation	CoC certification	Validated smelter/ refiner list
Mutual recognition	RJC CoC and CFS audits = Responsible Gold requirement	LBMA and CFS = conflict-sensitive sourcing only.	RJC and LBMA audits = CFS
Disclaimer: Fulfilling CFS requirements only meets the LBMA & RJC conflict-free audit requirements to avoid duplication. There are additional requirements for refiners to achieve LBMA & RJC certification.			

The LBMA's Responsible Gold Guidance is a mandatory due diligence policy for all Good Delivery gold refiners in order to maintain their LBMA accreditation. This programme is tailored for refiners delivering into the London Bullion Market and other financial gold markets around the world. The 63 LBMA Good Delivery gold refiners include the pre-eminent refiners of gold internationally, with an annual production making up between 85% and 90% of world gold production. Compliance with the guidance is reviewed annually by independent auditors and results are submitted to the LBMA, as well as being made available to the public.

The guidance formalises and extends the existing due diligence in the refining industry by incorporating a risk-based approach to avoid sourcing gold from areas subject to conflict. The guidance is based on the OECD Due Diligence Guidance, as well as existing practices in Good Delivery refiners aimed at combating money laundering and terrorist financing.

The EICC-GeSI's Conflict Free Smelter (CFS) Program

The CFS Program is a voluntary initiative developed by the GeSI and EICC extractives group, in which an independent third party audits smelters' and refiners' procurement and tolling activities and determines whether the smelter or refiner has demonstrated that all the minerals they processed originated from conflict-free sources. The CFS Program publishes the list of smelters and refiners who have been found compliant to the CFS Program protocol, on the CFS Program website (www.conflictfreesmelter.org). The CFS programme is tailored specifically for the electronics industry supply chain.

The RJC Chain-of-Custody (CoC) Standard enables responsible sourcing of precious metals for businesses in the jewellery supply chain. RJC's CoC Standard was launched in March 2012 and is a voluntary standard applicable to gold and platinum group metals (platinum, palladium and rhodium) in addition to the mandatory RJC Code of Practices for RJC members.

RJC CoC-certified entities, including gold refiners, are audited to ensure that CoC precious metals are conflict-free as a minimum, and to ensure systems are in place to assure provenance claims of mined, recycled and/or grandfathered gold. RJC CoC-certified entities must also meet a range of requirements for human rights, labour standards, environmental impact, and business ethics, as set out in the RJC Code of Practices. Certified gold refiners must implement conflict-sensitive sourcing practices in line with the OECD Due Diligence Guidance for all sources of gold to the refinery. RJC has recognised the LBMA and CFS audits as fulfilling relevant requirements of Section 10 of the CoC Standard. As per the other programs, RJC's Certified Refiners are publicly listed at http://www.responsiblejewellery.com/chain-of-custody-certification/chain-of-custody-certified-members/

The industry programmes are aligned with the recently issued SEC final rules as well as the OECD Guidance and Gold Supplement. Industry programmes, such as those developed by the GeSI and EICC Extractives group, LBMA and the RJC, were implicitly recognised as compliant with the SEC rules.

> *"The LBMA's Responsible Gold Guidance is a mandatory due diligence policy for all Good Delivery gold refiners in order to maintain their LBMA accreditation."*

The CFS, LBMA and RJC audit programmes aim to ensure that the global gold market can continue to function smoothly supported by market participants' efforts to demonstrate that their gold-containing products are 'conflict-free'.

The LBMA, EICC-GeSI and RJC are committed to continuing to work together for industry efficiency and sharing of lessons learned as programmes are implemented.

LBMA Responsible Gold Guidance enables gold industry to meet SEC final conflict minerals rules

In August the US Securities and Exchange Commission (SEC) adopted final rules that implements Section 1502 of the Dodd-Frank Act. These rules require companies to publicly disclose their use of conflict minerals that originated in the Democratic Republic of the Congo (DRC) or an adjoining country.

The LBMA has played a leading role in ensuring that once these rules are in place, the global gold market will be able to continue to function smoothly while at the same time allowing market participants to demonstrate that their gold-containing products are 'conflict-free' for the purposes of the SEC rules.

This has been achieved by the development of the LBMA's Responsible Gold Guidance, with which all Good Delivery gold refiners must comply in order to maintain their LBMA accreditation. Compliance with the guidance is reviewed annually by independent auditors and results are submitted to the LBMA, as well as being made available to the public.

The SEC final rules repeatedly endorse the OECD guidance as a "nationally or internationally recognised due diligence framework" for fulfilling Dodd-Frank requirements of conflict mineral due diligence. The SEC says that it "satisfies our criteria and may be used as a framework for purposes of satisfying the final rule's requirement that an issuer exercise due diligence in determining the source and chain of custody of its conflict minerals".

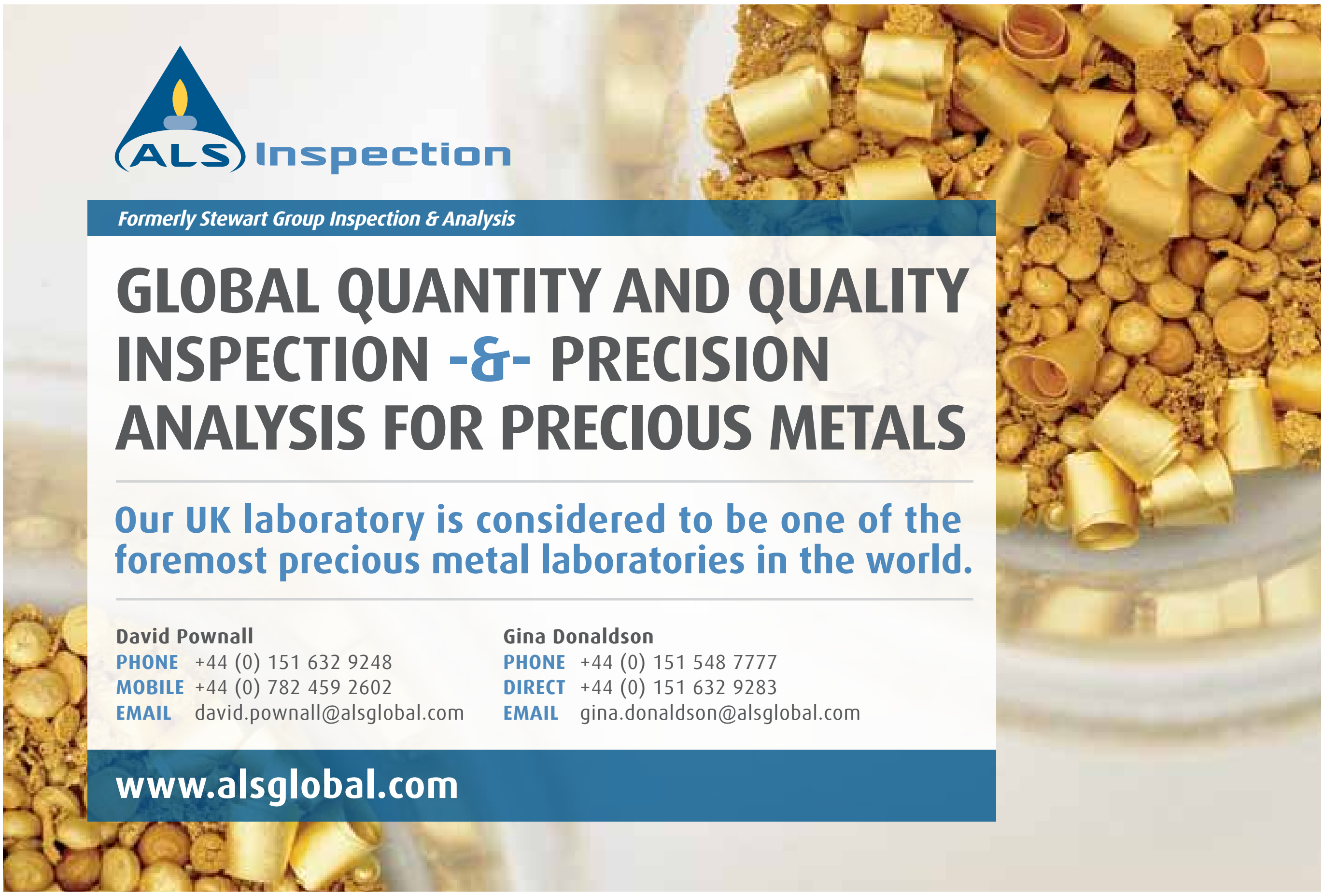
In addition, the SEC endorses the OECD Gold Supplement as such a framework for gold. The gold industry has worked diligently with the OECD to make the Gold Supplement a sound and workable guidance, with representation from the LBMA, the World Gold Council (WGC) and the Responsible Jewellery Council (RJC).

> *"The LBMA has played a leading role in ensuring that once these rules are in place, the global gold market will be able to continue to function smoothly."*

Gold industry programmes for refiners, such as those developed by the LBMA and the RJC, were implicitly recognised as compliant with the SEC rules. "An issuer would have reason to believe representations were true if a processing facility received a 'conflict-free' designation by a recognised industry group that requires an independent private sector audit of the smelter, or an individual processing facility, while it may not be part of the industry group's 'conflict-free' designation process, obtained an independent private sector audit that is made publicly available."

The final SEC rules make a number of changes from the proposals they announced in December 2010 to improve its practical implementation, which are beneficial for gold supply chains. The LBMA Gold Guidance goes beyond the requirements of the SEC rule and is therefore already well positioned to more than fulfil the expectations of this rule and of comparable international standards.

At the 2011 LBMA Conference in Montreal LBMA Chairman, David Gornall announced that the issue of conflict gold was the LBMA's number one priority. Since then the LBMA has worked diligently with other bodies, particularly the WGC, the RJC, the Electronic Industry Citizenship Coalition-Global e-Sustainability Initiative (EICC-GeSI) and the OECD over the past two years, to prepare itself for these rules. The outcome reflects favourably on the effective work undertaken by the LBMA and these other industry bodies with which it has been working closely.



LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

On 1 July, 2012, WestLB AG changed its name to Portigon AG.

On 26 September, 2012, Jewellers Trade Services Partners (JTS) was admitted as an Ordinary Member.

Associates

On 1 August, 2012, Gerald Metals Inc changed its name to GT Commodities LLC.

On 10 August, 2012, Alex Stewart International was admitted as an Associate.

On 26 September, 2012, Sunshine Minting Inc was admitted as an Associate.

On 9 October, 2012, Stewart Group Inspection & Analysis changed its name to ALS Inspection.

These changes brought the membership to a total of 139 companies, comprising 69 Members (of which 11 are Market Makers) and 70 Associates.

GOOD DELIVERY LIST

Doduco GmbH of Pforzheim, Germany was added to the Silver List on 9 August, 2012.

There are currently 63 refiners listed on the Gold Good Delivery List and 73 refiners on the Silver Good Delivery List.

COMMITTEES

Management Committee

The committee met in July and September to review reports from the various sub-committees and provide guidance on a number of current activities. In addition, the committee held a meeting in September to focus on longer-term issues including the optimum way of communicating to the membership as well as getting feedback from Members and Associates about the Association's activities and future direction. Another topic discussed was the need for increased due diligence on the admission of Members, Associates and Good Delivery refiners. It goes without saying that the Executive welcomes comments, feedback and criticism at any time from the membership as well as from the wider bullion market. If you have any strong opinions on what the LBMA is doing, don't wait to be asked for them. Email me at; stewart.murray@lbma.org.uk.

One particular item of discussion in recent months, both within the Management Committee and at meetings of the Market Makers, has been a review of the arrangements for compiling GOFO and SIFO, particularly since the advent of the daily forward curves for these metals which were introduced last year. The committee has accepted a recommendation from the forward Market Makers that their GOFO submissions should include both dealable bids and offers in the half-hour before the GOFO means are calculated at 11:00 am each day. At present, only dealable bids (the rates at which they will lend called to other Market Makers) are submitted. In addition, in future, submissions will have to be made by 10:45 am.

GOFO will continue to be based on the submitted bids, and the Reuters GOFO page will be essentially unchanged. While GOFO is a well-established benchmark for the forward gold market, SIFO – its near equivalent – has always been purely indicative in that it is based on submitted mid-rates. As the information in the daily forward silver curve is also based on mid-rates (though covering an extended period from spot to three years forward) it has been agreed that SIFO will be discontinued with effect from 5 November, 2012.

Regulatory Affairs Committee

The RAC met in July and August to discuss a variety of regulatory issues. The most important of these continues to be the LBMA Responsible Gold Guidance but as this work moves from development to the implementation phase, the committee is increasingly looking at other regulatory issues. The RAC's main goal is to provide members with timely and relevant information about forthcoming regulatory developments which will have an impact on the bullion market. Part of this work involves the Executive improving contacts and communications with regulators and related associations. The RAC has also contributed to the discussions in the LBMA about how the optimum level of due diligence can be practised when admitting companies to the membership.

Physical Committee

The committee met in July and September to review the work of the Executive in its maintenance of the Good Delivery system. A very large number of refining companies are currently in the process of applying for accreditation or are already going through the technical assessment procedures. The current phase of proactive monitoring, which primarily involves refiners in the former Soviet Union, is particularly demanding for the Executive because of the logistical challenges of moving assay samples into or out of the successor countries.

A new version of the Good Delivery Rules was posted on the website in September. The changes since the previous version are described in the preamble. One of these is the inclusion of Alex Stewart International in the list of LBMA Approved Supervisors.

Weighing has been a particular focus of the committee's discussions at the two most recent meetings. Topics included the agreement on 12 September to list Barclays Bank's new vault as an Approved Weigher and the initiation of a review of the London vaults' experience of using the Sartorius gold scale over the past year.

The committee reviewed progress in the development of a new version of the visual guide to Good Delivery bars (which will help refiners to understand what is acceptable to the London vaults in relation to the physical imperfections in Good Delivery bars). The basic website structure has now been developed. Due to pressure of other work, little progress has been made with the project to provide a scheme for accrediting vault staff but it is expected that work on this project will resume by late October.
The committee also took part in a joint meeting with the Membership Committee which focused on the due diligence to be applied to applicants for Good Delivery accreditation.

Finally, the committee has continued to discuss bullion market VAT, taking account of the views of the VAT group which has received feedback on the memorandum of understanding on VAT that was issued to Members and Associates earlier in the year.

Public Affairs Committee

At its meetings in July and September, the PAC applied what might be called the finishing touches to the plans for the annual conference, which is being held this year in Hong Kong, 11 to 13 November. It looks as though there is going to be another record attendance. The committee is now turning its attention to future events and examining possible venues for the 2013 and 2014 conferences.

However, in the immediate future the most exciting event is of course the Silver Anniversary Dinner for Members, Associates and guests which will be held in the splendid surroundings of the Mansion House in the City of London on 10 December. Reservations of places should be made through the LBMA contact for each member company (see below for more details).

Membership Committee

Apart from its detailed consideration of the applications for membership, the work of the committee in its recent meetings has focused on a particular issue, namely how the LBMA should treat applications from related companies. If two related companies share a single trading desk, the LBMA allows both of them to be Members but it requires that one of them must have the status of an Affiliate membership and thereby waive certain rights, such as voting at the AGM and sponsoring applications if the other company is making use of these rights.

The same requirement applies if two sister companies wish to become Members. If these companies have separate managements and trading desks, however, then both may be admitted as Members, provided that only one of them will exercise the above-mentioned rights at any one time.

Finance Committee
The Finance Committee increasingly plays a proactive role in the administration of the LBMA, rather than simply drawing up a budget and approving the annual accounts. For instance, at its meeting in September, the committee examined a proposed entertainment and travel policy for the LBMA which was subsequently approved by the Management Committee.

The Finance Committee also has to perform the Treasury function of ensuring that the cash balance from the Association's ordinary activities is effectively and securely invested. Because of the seasonal nature of LBMA cash flow, this cash balance shows very distinct peaks and troughs. The Executive and the Finance Committee both strive to ensure that these funds generate some return, even in these days of minimal interest rates.

Executive Meetings and Travel
In September, the Chief Executive and Deputy Chief Executive took part in the second 'PlatforM' meeting, organised by the European Precious Metals Federation, which was attended by a number of associations representing the precious metals markets in Europe and North America. These included the International Platinum Group Metals Association (IPA), the London Platinum and Palladium Market (LPPM), the Silver Institute and the World Gold Council. All participants agreed that it would be useful to hold such meetings on a biannual basis to allow an exchange of information about a range of topics and to avoid a wasteful duplication of effort. The next meeting will be organised by the LBMA and will be held in London in March 2013.

Silver Anniversary Dinner
All Members, Associates and Good Delivery refiners have been invited to apply for tickets for the Silver Anniversary Dinner to be held in the Mansion House in the City of London on 10 December, 2012. This is going to be a very special occasion with many of those who were involved in the early days of the LBMA attending as guests. An initial allocation to the various grades of membership will be:

Market Makers: 10
Ordinary Members: 6
Associates: 4
Good Delivery refiners: 2

Contacts at all Member and Associate companies have already been asked to reserve places for their colleagues who wish to attend. After receipt of the initial reservations (which should be submitted by the end of October), additional places can be reserved by application.

All staff members and associates who are involved in the bullion market may attend. To ensure a place at the dinner contact Varsha at varsha.peiris@lbma.org.uk without delay. In addition, taking account of the needs of central bankers who are attending the dinner as guests of the LBMA, a Members' Seminar is being held on the afternoon of the same day. See page 23 for programme details.

Market Moves

Janet McCarthy to Metalor Technologies SA
Janet joins Metalor Technologies SA on 12 November, 2012 as the company's Group General Counsel and Compliance Manager. Janet will be responsible for all legal issues in the Group. Janet joins the Metalor team from Mitsui & Co. Precious Metals, Inc. located in New York, where she worked for more than 4 years as a General Counsel and Chief Compliance Officer.

Valerie Chan joins Natixis
Valerie joined Natixis on 1 October as a senior Precious Metals Trader. Valerie's career began at Citigroup in Singapore before she moved to London as a Precious Metals Trader.

Florian Richardt joins Heraeus Metallhandelsgesellschaft mbH
Before joining Heraeus as Manager, Sales & Marketing, Florian worked for five years as specialist for interest, currency and commodity derivatives at Commerzbank AG. In his new role at Heraeus, he will be responsible for strengthening and further developing precious metals sales activities. Florian holds a Master's degree in Finance and Capital Markets from the Frankfurt School of Finance and Management.

Andrew Silver joins Triland Metals Limited
Andrew moved to Triland in mid-September as part of its sales team. He brings more than 20 years of customer-facing LME experience and extensive knowledge of metal industry customers.

Edgar Geister to Commerzbank
Edgar joined the Luxembourg based precious metals team of Commerzbank on 1 August, after having served more than 15 years in the international corporate credit business. In his new role, Edgar will focus on expanding the physical business.

Between 1997 and 1998 he worked as a credit administrator and credit analyst for Westdeutsche Landesbank (Ireland) plc before moving to Luxembourg and taking over responsibility as a Senior Credit Analyst for Commerzbank's credit department and becoming a group head at the beginning of 2011.

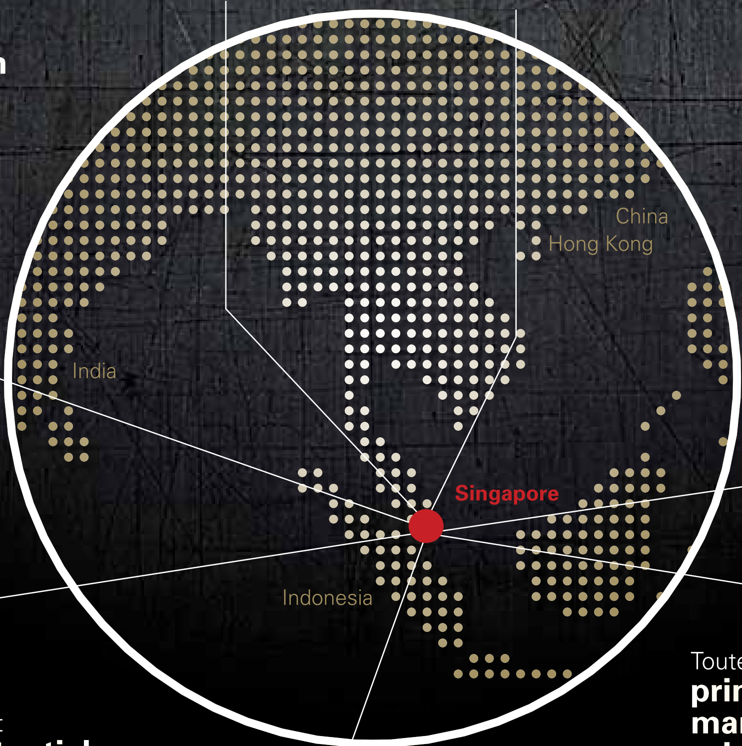
Singapore

Asia's global precious metals trade hub

Asia's most **transparent** country

World's easiest **place to do business**

World's highest concentration of **high net worth individuals**



Asia's most **liveable** city

City with the greatest **investment potential**

Touted to be the world's **principal wealth management and private banking hub** by 2013

Asia's most **secure and sophisticated vaulting facility**

Make Singapore your global precious metals trade hub
From 1 October 2012, all investment precious metals[1] will be exempt from 7% VAT; Refiners based in Singapore with the intention to be LBMA/ LPPM-accredited can take advantage of the Approved Refiner and Consolidator Scheme (ARCS)[2].

Visit **www.iesingapore.com/preciousmetals** for more information.

1 Investment precious metals are defined as gold of at least 99.5% purity, silver of at least 99.9% purity or platinum of at least 99% purity; they must be produced by LBMA/LPPM-accredited refiners.
2 ARCS persons can enjoy the following benefits: (a) VAT suspension on importation of goods; (b) Waiver of VAT payment on goods supplied between ARCS persons; and (c) Special input tax recovery for ARCS persons, as compared to the input tax claims allowable under normal VAT rules following the VAT exemption of IPM.

ie Singapore

Driving Singapore's External Economy

International Enterprise Singapore is the government agency driving Singapore's external economy.

COMMERZBANK

What you need is a global partner in precious metals

Argor-Heraeus

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg CBGL<GO>
Reuters CBGL
Direct contact +352 477 911 2540

Achieving more together

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request.
Copyright © Commerzbank AG 2012

Goals Set, Goals Achieved

Editorial comment, by David Gornall, Global Head of Precious Metals Trading at Natixis and LBMA Chairman

At our conference in Montreal in September 2011, I announced the LBMA's two major goals for the coming year. These focused on the vitally important regulatory issues which were confronting our market. It is not just a matter of good fortune that we have had the necessary resources (an experienced Executive and the then new Regulatory Affairs Committee) to rise to the resulting challenge. Indeed it is a testament to the prescience of the previous Management Committee that we were able to achieve so much.

Goal number one was to ensure that the Good Delivery List did not become a two-tier version as a result of pending US legislation. The efforts that your Executive made on behalf of the broader industry were aimed at explaining our approach and then positively influencing the numerous stakeholders of Dodd-Frank section 1502 relating to conflict minerals in the Great Lakes area.

Following the appointment of our Deputy Chief Executive, Ruth Crowell, as the co-facilitator of the OECD gold supplement drafting committee, Ruth made new contacts in governmental, corporate and NGO circles that helped us to achieve the best possible result for all concerned. The goal of retaining a level playing field for the whole market, based on a single Good Delivery List – rather than one that is used in the US and another that is not – has been achieved.

Through further cooperation with the Responsible Jewellery Council, the World Gold Council and the EICC-GeSI in the US, we have created a protocol for refiners that operationalises the OECD guidelines. Of course some of our most important conversations and meetings were with the Securities and Exchange Commission (SEC), which was required by Congress to develop rules to implement the measures in the Act.

> *"Through further cooperation with the Responsible Jewellery Council, the World Gold Council and the EICC in the US, we have created a protocol for refiners that operationalises the OECD guidelines."*

The resulting rules were a lot less onerous than many had anticipated and broadly practical to the industry.

As a result of this publication of the SEC rules, the Executive has revised the LBMA Responsible Gold Guidance which, together with the associated Audit Guidance, has now been circulated to Good Delivery Refiners and other interested parties for comment.

> *"The combined result of all these efforts furthers our ongoing aim of reinforcing our role as the competent authority for OTC gold and silver."*

The second of the goals, a better treatment of gold within the Basel III bank capital ratios, remains in the midfield area. These subjects and other regulatory issues have now become prime topics for the LBMA and its members.

We have responded to these challenges in various ways, including the organisation of two short seminars on both subjects, where experts have presented to the LBMA on their findings. It is of course our intention to continue this work.

The combined result of all these efforts furthers our ongoing aim of reinforcing our role as the competent authority for OTC gold and silver.

At the last Management Committee meeting, we decided to start work on an educational suite whereby we will use webinars and other forms of electronic information to help educate new entrants to the bullion market within the Membership. This is financially possible due to the success of past conferences and support from Members, Associates and Good Delivery Refiners.

The forthcoming conference in Hong Kong has already outstripped previous conferences in terms of delegates, with more than 565 delegates registered so far. I would like to thank the PAC in advance for the way they developed the programme and the many new initiatives that participants will enjoy at the event.

In other areas of the LBMA's work I have to mention the Market Makers group, which has recently reviewed the terms of reference for all the services that they provide to the market. This has included a review of GOFO and SIFO in the light of the introduction last year of the daily forward curves compiled on the basis of their contributions. Details of the new arrangements will be communicated to the Membership shortly.

Not long after our conference, many of us will meet again at a very special event for Members and guests of the market, to be held at the Mansion House on 10 December. The LBMA's 25th Anniversary Dinner will be a unique opportunity for past and present members of the market to meet and compare the state of play today with how things were in the early days of the LBMA (and earlier).

Many thanks to our first Chairman, Robert Guy, for scribing his first article in *the Alchemist*. He is, of course, correct in saying that we continue to grapple with challenges similar to those he and his colleagues faced in the late 1980s, but there are a great deal more of them now than in 1987 – all of which keeps us all healthily busy. It is an honour to read that he congratulates the LBMA for its continued success. The period that Bob refers to hold fond memories for me, as I worked with him, John Bishop, Martin Stokes and Guy Field!

David Gornall, Global Head of Precious Metals Trading at Natixis and LBMA Chairman.

David Gornall started his career in 1979, trading silver at Lonconex Limited, part of the Primary Industries/Golodetz commodity trading group. After a spell at Morgan Guaranty Trust of New York, he moved to Sogemin, trading in the LME ring and heading the bullion and FX desk. In 1992 he joined NM Rothschild to start their LME base metals operation, before returning to Sogemin's successor, Natixis Commodity Markets –where he was a main board director until 2009.

David is currently the Global Head of Metals Trading at the French Investment Bank, Natixis.

David is Chairman of the LBMA and has been a member of the Management Committee since August 2005.

facing facts

Paul Burton,
Senior Equities Analyst
Thomson Reuters, GFMS

The recent Denver Gold Forum brought together some 160 precious metal development and mining companies with the world's top fund managers and analysts. This annual get-together is the premier event in the sector – it's much like the LBMA conference of the gold investment world.

This year's conference was probably the largest and most diverse gathering I have witnessed in the 16 years I have been attending. The gold price performed its customary pre-Denver spike, which to a degree helped soothe some nerves in an industry under severe pressure through operating and capital cost inflation, project delays and missed production targets, and lack of significant discoveries.

What a torrid time the gold industry and its investors have endured over the course of this year so far. Who would have thought even two years ago that with a gold price close to US$1,800/oz as I write, a number of gold producers would be taking the dramatic step of firing chief executives for poor operational performance?

To compound things, company share prices have fared badly in the equity markets, although it would perhaps be harsh to blame the company executives for the full extent of the decline. That is due more to reduced investor risk appetite since the economic crisis of four years ago.

The gap between anticipated performance and sober reality has exposed poor management techniques and ability, or at least the wrong emphasis in strategic planning. If the gold price were still in a rampant phase of the bull market we would not be having this discussion as the healthy profit margins would have diverted attention and helped paper over the cracks. But with gold in a sideways trading range for much of this year, the focus has been on how companies are managing the pressures of cost inflation – both operating and capital.

The boards of a number of major gold producers, most notably Barrick Gold and Kinross Gold, have taken the dramatic step of firing their chief executives.

What has been going wrong? It seems that company boards have had enough of project delays and cost overruns that have not only threatened growth and profitability but have, more significantly, led to an exodus of investors.

In Barrick Gold's case, the company's shares have underperformed those of its peers and the gold price, and the recent disclosure that the massive Pascua-Lama project would now be delayed by a year and cost up to US$8 billion to complete (against US$3 billion just three years ago in the feasibility study) prompted the board to act and dismiss Aaron Regent and install an accountant, Jamie Sokalsky, in his place.

Mr Sokalsky has already imposed a more conservative fiscal regime on to the company by stating in the Q2 results that the company will adopt a more disciplined capital allocation approach focusing on the two key metrics of free cashflow and risk-adjusted return. The new mantra will be "Returns will drive production; production will not drive returns".

As a result, the company has effectively put on hold two of its large capital projects (Cerro Casale and Donlin Creek) as they "do not currently meet our investment criteria". The company will continue with permitting activities at reasonable costs and evaluate options to improve the economics of both projects.

This is good news. I have suggested in the past that there should be a greater concentration on measures of financial performance throughout the industry rather than the 'rock factory' mentality and metrics, such as non-accretive reserve and production growth, without any consideration of costs.

What shareholders want now is security, and producers should offer both growth in earnings and net cashflow, on a per share basis, and provide better returns in the form of dividends to compensate for poor capital appreciation.

One of the areas where these considerations are particularly significant is in merger and acquisition (M&A) activity which, as readers may remember from my last Facing Facts, is very much in the news. Indeed, there have been a number of new announcements in recent months that indicate that there is a significant consolidation wave in the intermediate sector of the industry.

It is interesting to analyse the latest deals to find out how much companies are willing to pay for an ounce of gold in the ground. Based on 13 of the largest deals either completed or announced this year so far, our calculations show that the weighted average price of an ounce of resource (Measured & Indicated) is US$119/oz. The range, however, is wide – one deal was completed at a miserly US$8/oz (Pan African Resources buying Evander from Harmony Gold Mining) and, at the other extreme, IAMGOLD paid US$654/oz for its acquisition of Trelawney Mining & Exploration (while on the face of it, this looks extremely expensive for a non-producing asset, Trelawney's main gold project has a huge inferred resource that IAMGOLD will hope to upgrade to Measured and Indicated category).

Although the price paid for 'in-ground' ounces is a simple and easy valuation method, it has a major drawback in that it assumes that all resource ounces are created equal, whereas in reality we know that some ounces are more expensive than others to exploit.

A more complete analysis takes into account the capital investment required to buy an existing operation or to put into production a development asset, plus the sustaining capital over the life of the mine as well as average life of mine operating costs to determine more realistically what it will cost to bring that ounce in the ground to the bullion market. For example, Pan African's US$8/oz becomes US$1,300/oz when all costs of extraction are taken into account.

If you do this analysis on the M&A deals previously mentioned, the average total cost comes out at just over US$1,150/oz, a discount of 35% to the spot gold price. This demonstrates the low valuations afforded by the market at the moment. When the gold price was US$330/oz the implied discount was zero.

Finally, if you turn the equation around, it suggests that the long-term gold price implied from acquisition valuations this year is just US$1,150/oz, a rather bearish forecast.

Paul Burton
Senior Equities Analyst, Thomson Reuters GFMS.
Paul Burton graduated as a mining engineer from the Camborne School of Mines in 1975 and spent almost twenty years working in the South African gold mining industry before becoming editor of World Gold Analysts in 1996, a position he still holds. In 2008 he became Managing Director of GFM World Gold until the company was acquired by Thomson Reuters last year and is now Senior Equities Analyst, Thomson Reuters GFMS. He is an established speaker on the international conference scene and is Chairman of the FTSE Gold Mines Index Committee. He holds an MSc in Mineral Economics and an MBA from the University of the Witwatersrand.

The Alchemist is published quarterly by the LBMA.
For further information please contact Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

VERISCAN

BULLION IDENTIFICATION SECURITY SYSTEM

The Fingerprint of the Future

Finally, bullion arrives in the digital age…

PAMP, the renowned industry innovator, once again transforms the world of precious metals by introducing the latest in Laser Surface Authentication technology: VeriScan™.

With a uniquely individual and imperceptibly present 'surface signature' that is up to four-times more distinctive than a human fingerprint, each PAMP bar is designed to enhance authenticity while offering you a world of possibilities to identify and manage your transactions of PAMP bullion.

Progressive worldwide rollout begins early 2013.

PAMP®

Produits Artistiques Metaux Precieux

TRUST IS PRECIOUS

The Art of Precious Metal Transformation®

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

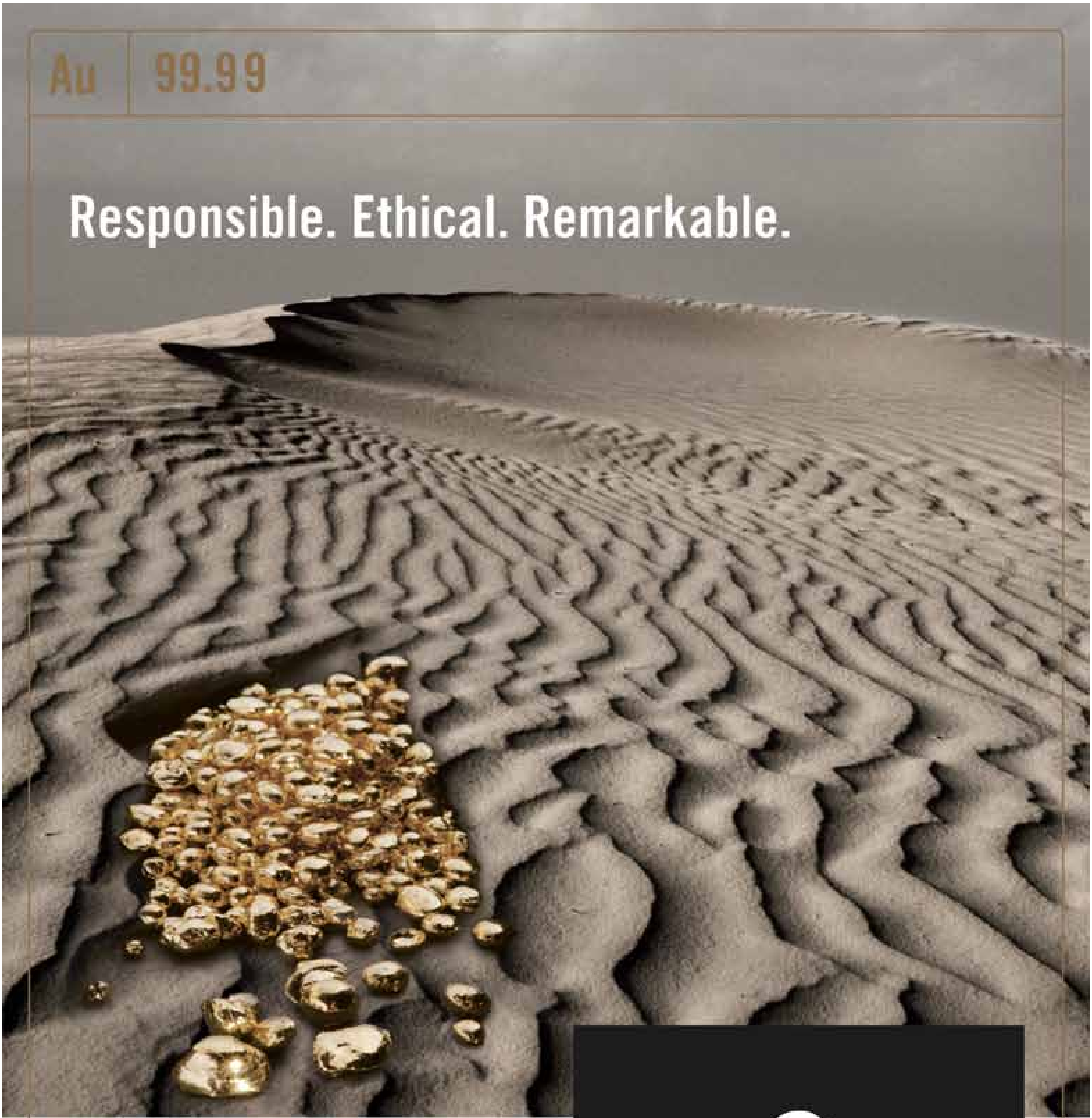
LBMA

Alchemist

The London Bullion Market Association ISSUE 69 January 2013

In this issue

The photo above shows Barrick's recently completed Pueblo Viejo gold mine in the Dominican Republic. The mine is expected to reach full production by the second half of 2013, with annual production expected to be approximately 1 million ounces. Read more about the challenges of international mine production in the article by Jamie Sokalsky, CEO of Barrick Gold Corporation, on pages 9-12.



With a 90-year reputation for integrity and honesty, Rand Refinery is firmly committed to providing gold that meets the highest ethical standards. That's why we have taken every possible step to ensure that all of our gold is responsibly produced. Our Certified Gold's entire chain-of-custody is independently audited, in full compliance with the requirements set down by various regulatory bodies and recently enacted legislation. Through continual, close co-operation with many of these bodies, Rand Refinery is uniquely able to safeguard and maintain regular certification processes.

RAND REFINERY

Providing access to wealth across the world, through sustainable integrated metals management

www.randrefinery.com

Macro-Economic Outlook for the World Economy

By Professor Yu Yongding, Institute of World Economics and Politics, former member of the Monetary Policy Committee of the PBOC

The following is an edited version of a keynote speech made at the LBMA/LPPM Conference in Hong Kong on 12 November 2012.

Global Financial Crisis

The first thing for me to ask is what is the nature of this global financial crisis and how long is it going to last? In the beginning, I was rather optimistic. I thought this was the usual global crisis and it would recover soon and so on. Then I found that that was not true. This time, the crisis is different because the nature of this global financial crisis is very different from that of previous crises. That is, the fundamental cause of this global financial crisis is a debt crisis, because the wealthy countries spent too much and borrowed too much.

When the subprime crisis broke out, US total debt to GDP was 359%, which is a huge number, double the ratio in the 1980s. Before 2007, among economists, we were debating what would cause a global economic crisis and we paid attention to the 17% of external debt. In other words, the US accumulated large foreign debt. Foreign debt as a percentage of GDP was 17% and we worried that there would be a sudden stop, the dollar interest rate would rise and then an economic crisis would occur. However, this did not happen and we made that mistake because we failed to see the broader picture, which was 359%, among which household debt to GDP was roughly 100%. We just took notice of the 17% and forgot the 100%. Equally importantly, we forgot that the 17% consisted mostly of US government securities, which were supposed to be very safe, and that, in contrast, the 100% consisted mostly of mortgage loans and derivatives, which were much more risky. I think this was where we made a big mistake. The subprime crisis translated to a public debt crisis and I do not know how Obama can hang on to this cliff now that the US public debt to GDP ratio is something like 115%, which is the highest since the Second World War.

Economic Recovery

(a) Historical Methods

This is the basic situation we are facing and now the question is how the United States and many other countries will be able to solve this problem. Without lowering the debt to GDP ratio to a sustainable level, there will be no real economic recovery. I think we have to accept this fact. Throughout history, debt to GDP ratio has been reduced by economic growth, fiscal austerity, default and inflation.

I do not think there is any other choice but to adopt one of these methods to reduce the debt to GDP ratio, then we can talk about economic recovery. In fact, the US owes a huge amount of foreign debt, so dollar devaluation will also be a very important option for the Federal Reserve.

(b) Quantitative Easing

Now we have so-called 'quantitative easing' (QE), which I think has the following objectives:

- To drive investors away from Treasury bills, because this is a very safe asset, and then the investor has to buy other financial assets, so you drive up share prices, gold prices and many other prices. Hence, the wealth effect will have some positive impact on economic growth. This is supposed to be the rationale in the mind of Ben Bernanke.
- To create inflation. Before taking over the Presidency of the Fed, Bernanke was very open in talking about the possibility of using inflation to solve the debt problem. He gained the very apt nickname 'Helicopter Ben', and I think he will rule out this option, but of course he will not say so openly.
- To push down the value of the dollar is another very important objective of QE, even though Bernanke refused to admit that this is the policy, but I think Greenspan is more honest, because he is no longer the governor. He said that one of the most important purposes of QE is to drive down the value of US dollars. I think this is a very important way for the United States not only to reduce its debt burden but also to promote exports and hence growth and employment.

Essentially, the policy of QE is to shift the debt burden away from borrowers at the expense of creditors and I think this is basically the situation that China is facing.

China

(c) External Environment

China is facing quite a difficult external situation; firstly, because of the global recession and global moderation, China's external demand has weakened. For many years, China's economy has depended on its exports. Even though it is an exaggeration to say China's growth is entirely dependent on external demand, I have to admit that export is one of the most important growth engines for the Chinese economy. To achieve a decent rate of growth without worsening the debt problem, I think, the only option for the United States is to increase exports and to run a trade surplus. Therefore, the pressure on China for RMB appreciation will still be high, even though China's current account surplus to GDP ratio is not that high – it is more or less balanced.

(d) Losses

In fact, China has suffered great losses. Over the past two or three decades, China has accumulated something like $5 trillion in foreign assets. It has also accumulated something like $3 trillion in foreign liabilities. China is credited with something like $2 trillion, but for most of the past 10 years, China has had to pay investment income to other countries. Last year, China's investment income was negative $27 billion. I am a lender, so I lend money to you. Instead of collecting a return from you, I pay interest to you. That is quite ridiculous, but that is the reality that China is now facing. This situation is not difficult to understand. First, China's investment in the US is mostly in US government bonds. US Treasuries' 10-year yield is less than 2%, while in American firms' average investment return in China was as high as 33% in 2008, according to the Conference Board. The corresponding figure for multinationals in China was 22%, according to a World Bank team working in China. To make things worse, US inflation is more than 2%, so the real return for Chinese investment in US Treasuries is negative. Second, China's claims on the US are denominated in the US dollars and America's claims on China are mostly denominated in the RMB. The devaluation of the US dollar automatically leads to the worsening of China's net international investment position (NIIP). In addition, the US will try its best to inflate away its debt burden, so China will suffer even more in the future.

> *"China is facing quite a difficult external situation; firstly, because of the global recession and global moderation, China's external demand has weakened. For many years, China's economy has depended on its exports."*

(e) Challenges

China is facing lots of challenges, but a very big one is that, on the one hand, China has to maintain a decent growth rate, because without a decent growth rate, there will be employment problems, social instability and so on and so forth. On the other hand, we cannot rely on

exports to promote growth. We cannot rely on running a current account surplus to promote economic growth, because of the global financial crisis, so how China can defend its interests and reduce capital losses is a very big challenge. My personal view is that in order to get rid of a devaluing US dollar and US assets, China should reduce its current account surplus as much as possible. China should not fear running a current account deficit against the US. Only by doing so can China can get its money back. Insisting on running a current account surplus against the US is equivalent to refusing allowing the US to repay its debt to China, which is simply stupid.

(f) Short-Run Growth Prospect
Earlier this year, most Chinese economists predicted that by the end of this year, we would see a growth rate of at least 8%, but until very recently, Chinese economic performance was not that satisfactory. I think there are three reasons why this happened.

Firstly, starting last year, the Chinese Government adopted a tight monetary and fiscal policy, trying to slow down the growth of real estate development. The investment in real estate development is very important for China's economic goals and we underestimated the impact of the slowdown of investment in real estate on China's economic goals.

We also did not expect that the situation in Europe would be so bad. We thought the European countries would be able to overcome their difficulties and have a better economic performance, but we were wrong.

Thirdly, and I think this is very important, until quite recently, the Chinese Government did not rush to use expansionary monetary and fiscal policies to stimulate the economy. In 2008 and 2009, there was a slowdown and the Chinese Government panicked a little and rushed to introduce a few stimulus packages. This year, I think the Chinese Government is more cautious and more relaxed, which I think is a good thing. It has not panicked and so has not, until recently, introduced a more expansionary fiscal and monetary policy. I think this is a very important reason why, so far, the growth performance of the Chinese economy is not as good as we expected earlier this year, but it does not matter. We need a slower but more sustainable rate of growth.

(g) The Talk of the Town
Late last year and early this year, people talked about a hard landing. I think there are three reasons why foreign pundits are talking about a hard landing:

- China's over-investment
- The low loan quality of China's banking system
- The property bubble and the possible crash of the housing market

I think all these arguments are reasonable, but more or less they exaggerate the extent of the seriousness of these problems. Yes, we have these problems, but they are not that serious yet. In fact, we have faced these problems many times in the 1980s, 1990s and 2000s. Indeed, in the 1980s and 1990s, I predicted the fall of the Chinese economy many times due to all these problems and each time I was wrong. Since then, I have become cleverer, I have tried my best to be optimistic and I have been right. I have shifted my position, so I hope you can follow suit. Do not follow the pessimistic forecasting of the Chinese economy, because China is a big country and the situation is complicated.

(h) Loan Quality of the Banking System
People talk about loan quality. In fact, there are a lot of problems, including the local government financial platform and big project finance. For instance, we have built a very good, high-speed railway, but the borrowing by the Ministry of Railways is huge, accounting for something like 4.3% of GDP. How this Ministry can repay the money we do not know, but China will be able to muddle through.

The key thing for me is that China's fiscal position is very good and you should focus on the fiscal position when you are analysing a country's situation. If a country's fiscal position is bad then the situation is hopeless, but in China, the budget deficit to GDP ratio is less than 2%. The public debt to GDP ratio is less than 20%. This is good enough and means that we still have room to manoeuvre. Even though there is a crash of this and that, we can foot the bill and survive. Of course, we cannot make too many mistakes. You can crash once, twice, three times, but perhaps three times is the limit. If the public debt to GDP ratio shoots up to more than 100% or 200%, the Chinese economy will be finished, but we are far away from that perspective, so there is no need for you to worry, at least for the short or medium run.

(i) Housing Market
I gave a presentation earlier this year at the New York Stock Exchange where I said that the real demand for houses will still be strong after the withdrawal of speculative demand and a floor for housing prices will be set. The quality of mortgages is quite good in China and the banks are in a position to absorb a large impact even if there is a crash. The real issue for China's housing market is not a bubble. China is a very big country and maybe in Shanghai there is a bubble, but you cannot say that the whole Chinese economy is suffering from a housing bubble. That is totally wrong. The issue for China is resource allocation, which I will talk about a little bit later.

(j) Growth Rate Slowdown
For me, a bit of a slowdown is a good thing and we should not really worry about it. Rather, we should be happy with it, because the priority for the Chinese Government should be to transform China's growth pattern from being investment-driven, export-driven to a more sustainable and sustained growth pattern. Therefore, China should focus on shifting the growth paradigm. Growth is important, but we should not pursue a very high growth rate and so for me 9% is too high. In order to reallocate resources and make better use of them, you should allow the growth rate to be slower. China's real estate investment to GDP ratio is 10%. In history, no country has had such a high percentage of investment in real estate development. If you take Japan or Korea, once upon a time, they were at 8% for a few years, but no country such as China has had such a high percentage. You cannot base your growth on cement and steel.

Another example is affordable housing in Beijing. The standard for an affordable house is 90 square metres. In Hong Kong, for a medium sized house, it is 47-49 square metres. China is still a developing country with an per capita income of something like $5,000 a year, so building affordable housing of 90 square metres in Beijing is ridiculous.

> *"The key thing for me is that China's fiscal position is very good and you should focus on the fiscal position when you are analysing a country's situation."*

Do you know how many steel mills there are in China? My guess is more than 1,000. We produce more than 48% of the world's steel products. Japan ranks second with 8%. China has no comparative advantage in producing steel. This is very good for Australians. My view is that China should cut the number of steel mills and reduce steel production. I am sorry for our Australian friends, but we have to do so and hence the slowdown is inevitable.

(k) Staying the Course
Faced with the slowdown, China should stay the course and stay calm, while not barring fine-tuning. According to Premier Wen Jiabao, China's growth pattern was not sustainable, not co-ordinated, not balanced, so we have to shift our growth pattern and in order to do so, we should allow the growth rate to be slower. It is affordable: for many years, we talked about 9% because we thought otherwise there would be huge unemployment, but this time, the labour market stress is not that serious. In fact, labour shortage has become a problem in many sectors and cities, which shows that there is room for the Chinese Government to slow the breakneck rate of growth and pay more attention to improving the quality of growth. This is desirable, because under a tighter economic situation, you force enterprises to have more competition and more incentive for upgrading their industrial structure and cultivating innovation, creation and so on.

(l) Progress in Structural Adjustment
China has made some progress in structural adjustment. They include:

- **Slowdown in Investment:** The growth rate of investment in real-estate development plummeted by 16.3 percentage points year on year in the first half of 2012.
- **Growth in household incomes:** plentiful anecdotal evidences indicate that growth

of household disposable incomes has accelerated.

- **Improvement in social security system:** The number of people covered by basic old-age insurance, unemployment insurance, workers' compensation, and maternity insurance has raised substantially. Moreover, universal medical insurance is emerging, and a comprehensive system for providing aid to students from poor families has been established.
- **Decrease in external imbalances:** since 2005, the RMB has appreciated roughly by 30% in real terms, which must have had a serious impact on exporters, reflected in the bankruptcy – as well as the upgrading – of many enterprises in coastal areas.
- **More balanced development across regions:** while growth in coastal areas has slow downed, provinces in Middle and West of China have maintained double-digit growth. Labor-intensive industries in coastal areas are moving inland. The regional disparity in economic development is narrowing.

Growth this Year

Earlier this year, when I talked about China's growth, I said it would be okay and there would be no hard landing. In fact, to make this prediction was not that difficult. Now everybody agrees that the Chinese economy will be okay this year. The Chinese economy has already bottomed out. My bet is that the growth rate will be 7.8% and I do not think I will be too wrong. The Chinese Government has significant room to manoeuvre. If it wants to maintain a growth rate of 8% or even higher, it can do that even with just one quarter left. China's problem is not short-run growth. It is the sustainability of growth.

(m) Rebalancing

China's current account surplus to GDP ratio has been falling quite rapidly. By the end of last year, it was 2.8% – much better than that of Germany – so if the United States wants to attack somebody, it should attack Germany, not China. Thank God, Romney was not elected, not because I fear Romney, I have great sympathy with him and I have sympathy with some Republican ideas. I thank God he was not elected because he does not now need to try to figure out how to label China as a currency manipulator. China is not, so he would have had very hard work to do to back up his accusation and now he can just relax.

The factors contributing to the rebalancing are very simple:

- Worsening of the external environment.
- Worsening terms of trade.
- Domestic stimulus package – we use this a little bit and whenever we do, China's current account surplus is reduced.
- 30% real RMB appreciation, which is not immaterial.

A big issue is whether this rebalancing is cyclical or structural. The World Bank said that China's rebalancing was not real rebalancing, but cyclical. I disagree, even though usually I am sympathetic with many of the Bank's opinions. I think this is a fundamental change and not just cyclical. Of course, there are elements that are cyclical, so the safest statement about this is that it is both cyclical and structural, but perhaps more structural than cyclical. I do not think China's current account surplus will rebound strongly in the next few years.

This rebalancing is bad news for you guys, because China's importation of precious metal and mineral products has reduced. The figure for August shows a double-digit fall in prices relating to energy, precious metal and mineral products, so in future I think China will reduce these kinds of imports because it needs to readjust its economic structure. The Chinese economy will be less heavy, which is not very good news for Australia and maybe not very good news for Brazil and other countries, but I think perhaps you should be prepared.

(n) RMB Trends

I think there is still room for the RMB to appreciate, but that room is not very big. You should not expect the RMB to shoot up in a big way. I think that the PBOC may further reduce intervention in the foreign exchange market, but I may be wrong and Mr. Xie Duo can correct me. An important development in China since 2009 is the further opening of the capital account in the name of RMB internationalisation. Certainly, the PBOC will deny that there is RMB internationalisation. It claims that there is just RMB settlement for imports and exports. Whatever it calls the process, the essence is the same. Because of the policy of encouraging RMB settlement for imports and exports, to a very large extent China has opened the short-run, cross-border capital flows. This is perhaps good news for you, but not good news for me, because I think China's financial system is still fragile and we must be cautious. I am for further opening, but I am against opening up without doing more about interest rates and exchange rates, especially under the current turbulent international financial situation. Now all major industrialised countries are operating press prints at full speed. Cross-border capital flows will become even more turbulent. Why should China jump into the fray and expose itself to all sorts of shocks, without knowing what specific benefits it can gain?

Conclusion

Let me conclude very quickly by saying that the fundamental cause of the global financial crisis is the over-indebtedness of developed countries. Global deleveraging is the only solution for the global financial crisis. The deleveraging will take a long time and so will the recovery of global growth. For the United States, export growth holds the key to recovery; this is very important. To achieve export growth, the US dollar has to be further devalued, which in turn depends on the Federal Reserve's monetary policy. Therefore, there will be more QE, there will be more devaluation of the US dollar and there will be more trade frictions. But rebalancing is perhaps the most important area where the interests of China and the US coincide. Only by running a current account surplus can the US repay its foreign debt. On the other hand, only by running a current account deficit can China get its money back. Why should the two countries fight against each other for the interests of the other side?

2012 was a difficult year for China, but there will be no hard landing. The Government will and can prevent a hard landing from happening. The true danger lies in the medium term, in my view. In the short run, three years, five years, no problem, but in the longer run, it depends. The Chinese Government has to strike a balance between rebalancing the economy and maintaining a slower but still decent growth rate of 7%. This target was set in the five-year plan, but unfortunately we never pay attention to those kinds of plans. A big danger is that the fear of slowdown leads to rolling back the measures aimed at readjustment. The longer the delay in restructuring and rebalancing, the higher the cost will be, as we can imagine. If we had started RMB appreciation in 2003 or we had appreciated in a more determined way in 2005, China's accumulation of foreign exchange reserves would be much less and China would not have fallen into the dollar trap so deeply

In my view, China has entered a new period of adjustment and a paradigm shift, which may last for a few years, maybe five years or longer. During this period, the Chinese economy will grow about 7%. Thereafter, the growth rate will pick up again and eventually lift China up to the plateau of a high-income country.

Professor Yu Yongding is an Academician of Chinese Academy of Social Sciences (CASS), Editor-in-Chief, *China and World Economy* (1998-), Member of Advisory Committee of National Planning of the National Development and Reform Committee of the PRC (2004-), Member of Advisory Committee of Foreign Policy of the Ministry of Foreign Affairs of the PRC (2010-).

He was Director-General of Institute of World Economics and Politics (IWEP) with the CASS (1998-2009), President of China Society of World Economy (2003-2011), and Member of the Monetary Policy Committee of People's Bank of China (2004-2006).

Yu Yongding was born in Jiangsu province in 1948. He graduated from the Beijing School of Science and Technology of the Chinese Academy of Sciences in 1969 and worked as electrician at Beijing Heavy Machinery Factory from 1969-1979. He joined the Institute of World Economics in 1979 and was appointed as Research Fellow (1983-1986), Head of Research Department (1986), Senior Research Fellow (1987) and Senior Fellow (1995) with the institute.

He received his MA in economics from Graduate School of Chinese Academy of Social Sciences (1983), and D.Phil. in economics from the University of Oxford (1994).

Yu Yongding has authored and co-authored more than 10 books, and published numerous papers and articles on macroeconomics, world economy, and other subjects in various journals and news papers. He is the winner of Sun Yefang Prize in Economics (China).

LBMA/LPPM Preci
Conference 2012 R

By Aelred Connelly, LBMA

The 2012 LBMA/LPPM Precious Metals Conference was held in Hong Kong, during the period 11-13 November. The conference continued to break attendance records for the fourth year in a row as the 2012 event attracted a total of 764 attendees, from more than 38 countries. As is the case every year, media attention focused on the gold price predictions from Conference delegates.

At the 2011 LBMA/LPPM Conference in Montreal, delegates were overly bullish in predicting that the gold price would be US$2,019 by the time of the 2012 Conference. It turned out they were US$281 off the actual price of US$1,738. This year, LBMA/LPPM delegates predicted on the first day of the Conference that the gold price will be US$1,914 at the time of the 2013 Precious Metals Conference in Rome (29 Sept – 1 Oct). The following day, they predicted a lower price of $1,849, indicating that the Conference speeches and discussion in the corridors had perhaps caused a revision of delegates' bullish views.

The Conference opened on the Sunday afternoon with a new and popular initiative, the Informal Networking Reception. This was followed in the evening by the Welcome Reception, which was co-sponsored by the Shanghai Gold Exchange and the Shanghai Futures Exchange. After the first evening of networking, the Conference speeches began in earnest. The Opening Session featured two keynote speakers: Xie Duo, General Director of the People's Bank of China, and Professor Yu Yongding of the Institute of World Economics and Politics. Xie Duo explained the reforms and developments in China in recent years that have helped lay the foundations for the development and growth of the gold market in China. Professor Yu Yongding provided a fascinating insight into the global financial crisis, focusing on the two giants of the world economy, China and the US. His speech is reproduced on pages 3 - 5.

ous Metals Review

Networking continued with lunch on Monday sponsored by IE Singapore in the famous Grand Hyatt Tiffin Lounge. Following a full day of presentations, the evening's festivities began with a celebration of Hong Kong culture during the Cocktail Reception, followed by the Conference Dinner, sponsored by the Hong Kong Gold & Silver Exchange Society. The entertainment highlights included a display of martial arts, an impressive dragon dance performance and a Chinese acrobatic show.

Speaker highlights from the Conference included the most highly rated session, Precious Metals Investment, which was chaired by John Reade, Senior Vice President, Paulson & Co. This session featured Marc Faber, Editor and Publisher of the *Gloom, Boom and Doom Report*, who won the prize for Favourite Speaker, a 1 oz gold bar, kindly sponsored by PAMP SA. Other highlights included a session on developments in the Chinese and Asian precious metals markets, chaired by Albert Cheng, Managing Director, Far East, World Gold Council, and a session on mine production, which was chaired by Suki Cooper, Precious Metals Analyst, Barclays. This session featured two representatives from the two biggest mining companies in the world, Jamie Sokalsky, CEO of Barrick Gold Corporation, and Lan Fuscheng, Vice-Chairman, Zijin Mining Group Ltd. In their speeches, they highlighted the major developments and challenges currently facing producers. Jamie's speech is reproduced on pages 9 - 12.

Our congratulations and thanks to all the speakers, sponsors and delegates involved in the Conference.

The next LBMA Precious Metals Conference will take place in Rome, Italy, during the period 29 September to 1 October, 2013. We hope to see you there!

What you need is a global partner in precious metals

Argor-Heraeus

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading
- Refinery service through our partnership and equity participation in Argor-Heraeus for Finished and Unfinished physical products
- Full range of OTC Derivatives and Swaps
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>
Reuters	CBGL
Direct contact	+352 477 911 2540

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request. Copyright © Commerzbank AG 2012

COMMERZBANK

The bank at your side

International Mine Production

By Jamie Sokalsky, CEO, Barrick Gold Corporation

The following is an edited version of a speech made at the LBMA/LPPM Conference in Hong Kong on 13 November 2012.

Introduction

I think there are a huge number of factors that ultimately have changed the way we are going to see mine production going forward, in particular gold mine production. In the years that this conference has been going, we have seen so many changes – the gold price going up, but also many changes with respect to the challenges that gold-mining companies face. As everybody knows, gold has been in a bull market for a number of years. In my view, that shows no signs of reversing.

Today, I would like to provide some context around how mine supply has responded to that higher gold price and to this environment, and what I see are the trends going forward.

Gold Mine Supply

Over the past 11 years, gold prices have increased by almost 500%. However, gold mine supply has been largely unresponsive to that increase and was up only 6% over that period. I think many of us would have thought 10 years ago that if we were to see a gold price of over $1,700, there would be a lot more mine production in the world. That has not been the case. There are many factors that relate to that. I will talk about many of them today.

What are some of those factors? At a high level, I think we are seeing a combination of a lag effect of past low gold prices, cutbacks on exploration and capital spending in the past, plus a dearth of qualified technical people. The increasing maturity of the gold industry is another factor, as are the increasing cash costs that we have seen and the much higher capital costs. It is much more difficult now to find a mine, permit it and build it, than it ever was previously.

Industry Structure

There are very few mega-sized gold mines currently in production in the world. In terms of a cross-section of total gold mines by size, there are about 400 gold mines producing. Only 156 of these, or about 40%, produce over 100,000 ounces per year. We have 19 of those mines at Barrick. Twenty-one mines produce over 500,000 ounces per year. We have six of those. Only six mines in the world produce over 1 million ounces. We have two of those and are opening another two within the next couple of years.

As these mines continue to mature, there is limited potential to significantly increase the numbers of high-production mines in operation. We do not have a lot of big mines in the world that can ramp up production, and there are very few big mines being discovered. I will talk about that in a few minutes.

Annual Gold Production

In terms of annual gold production in the last seven years, one major trend is that there has been a significant changing of the guard amongst what were historically the biggest producing gold countries. In 2004, South Africa was the largest gold producer, but by last year had fallen to fifth-largest. Its ranking is likely to continue to decline given the increasing depth and higher cost of its producing mines. In 1980, just before Barrick was formed, 55% of all gold mine production in the world came from South Africa, although this was less than half of today's overall production. Today, that is only 7% of 90 million ounces.

As you know, China has taken over the mantle as the leader in global mine production. It has done so with an abundance of small-scale and non-private sector operations. The largest gold mine in China produced just over half a million ounces in 2011.

Australia has maintained its production over the last five years, while the United States has dropped to third place. It is worth noting that whilst there is still discovery potential in Australia and the US, the mines in these countries are becoming increasingly mature. Thus, the additional production we are going to see is going to come from less-developed jurisdictions. With those new jurisdictions comes additional challenges.

Global Exploration Trends

In terms of global exploration trends, we have seen a significant decline in exploration discoveries, particularly of large deposits, in recent years. That is partly due to prior exploration spending cutbacks in the 1990s, with the lower gold price, and also because companies are now forced to look for new deposits in remote areas due to the maturity of the traditional mining jurisdictions. To a large degree, the low-hanging fruit has all been found.

Challenges

(a) Overview

Specifically, we have seen discovery rates decreasing. The supergiant, or 20-million-plus ounce deposits, are rare. Districts are becoming more mature. The average finding costs are increasing. The timeframes to develop mines are also increasing. 10 years ago, we could build a mine from discovery to production in three to five years. Now it probably takes seven to 10 years, at a minimum – and maybe even longer. There are technical challenges that a company faces, including increasingly deeper and covered targets.

There are also many more non-technical challenges, including socioeconomic and geopolitical ones, which are increasing in developed and emerging countries.

(b) Exploration

Despite global exploration spending being at an all-time high – $8 billion was spent on gold exploration in 2011 – the rolling three-year average of endowment (reserves, resources and past production) from gold and copper-gold discoveries in the past two decades has dropped off quite sharply. As a point of reference, there were 11 major discoveries in 1991 but only three in 2011. The trend of declining discovery rates has continued to persist even during this bull market in gold, despite the major ramp-up in exploration

spending. I think this really reflects the increasing maturity of the industry.

It is also interesting to note that although there have been some gold discoveries, not one can be described as a super giant – that 20-million-plus ounce deposit. They are harder to find and that is directly impacting production growth because those super-giant discoveries are really the ones that can have a material impact on supply. There is also a lot less greenfield exploration being done. This is the so-called generative-type of exploration. That will also have an impact on future supply.

This decreased percentage of exploration budgets devoted to that early stage – or greenfield – exploration helps to explain the decline, over the last few decades, in the number of those big deposits. The trend in super-giant discoveries has been decreasing over the decades, from 14 in the 1980s, to 11 in the 1990s, to five in the 2000s. We will see what happens this decade.

The peak production in the 1980s was helped by the discovery of new technology, mainly heap leaching. We do not see any of those major technology breakthroughs today. The increasing maturity of the industry is evident. This will not bode well for future gold supply.

(c) Lag Times

Not only are discoveries decreasing, but the lag time between discovery – defined as the first resource that you can define – and production for mid-sized to large-scale mines is declining. Due to a number of factors, in the past, many discoveries of more than five million ounces were not put into production. Of the 105 five-million-plus ounce discoveries in the last 20 years, less than half of those are actually in production. In the past 10 years, we had 36 discoveries of more than five million ounces or higher. Only eight of these – 22% – are currently in production. This highlights how tough it is, even if you find gold, to advance it to production.

(d) Declining Grades

Grades of the ore produced in gold-mining and other mining industries have declined quite significantly. That is having an impact on production and cash costs. This is partly due to the maturity of the existing mines, and also because the gold price has gone up. The higher the gold price, the more ore that was previously uneconomical to mine now gets produced. You might previously have thrown it on the waste dump, or stockpiled it. Now, with the higher gold price, producers are lowering their cut-off grade so that they can produce the lower-grade ore that they previously could not at $300 or $400 per ounce.

There is a dramatic inverse relationship seen with gold prices increasing by about 500% in the past decade and average head grades moving from 2 grams per tonne to 1.5 grams per tonne. This does not sound like much, but it has a huge impact on overall cash costs. This means that companies are increasingly mining larger, low-grade deposits, which require larger equipment

and facilities, and are costlier to build and maintain. Fewer and fewer companies are equipped to actually spend the money to build and operate these large, low-grade mines. Even the smaller mines are costing more to build.

(e) Industry Cash Costs

Industry cash costs have increased at nearly the same rate as the gold price. Since the end of 2005, the gold price has increased by 270%, but cash costs are up 187%. This is one of the reasons why the gold equities have tended to underperform. Cash costs have inflated, so those margins have not been as attractive as investors would have liked.

Even though this is on a percentage basis – so a higher gold price on a higher base has resulted in an expansion of those margins – cash costs have increased. Much of that is because of the gold price, resulting in the industry being able to mine lower-grade ores and using lower cut-off grades. Other factors that contributed to the cash cost increase include rising labour, consumable and energy costs, and royalties because of the gold price. Grade, cash costs and gold price are very closely related.

Over the past decade, cost inflation in the gold industry has averaged about 16% per annum, versus about 14.5% for other types of mining. These numbers are pretty close. A big part of those overall increases – about 10% in gold – is due to inflation, currency valuations, other general mine site costs, labour and consumables. The remaining 6% is related to declines in mining conditions, recoveries and average grade. We have seen a 16% per annum increase in cash costs. This is a bit higher in the gold business relative to other mining companies. With the possible exception of currencies, each cost factor can be expected to continue to increase mining costs in the future.

Barrick's cash cost structure is similar to that of other organisations throughout the industry. Wages take up 40% of costs, and this is a figure that cannot be altered too much because of inflation with labour and union contracts. These rates will increase. There is a labour shortage in many areas in the world and wage increases cannot really be stopped. Energy takes up 15% and is also tough to control. It can, however, be hedged. We have done some things in that regard, but the industry is largely at the whim of energy prices. Maintenance costs account for 20%. That can be controlled a bit, but you have to do a lot of maintenance to ensure good availability for your trucks and other equipment. The cost of consumables for processing makes up the remaining 25%.

While you can do some things at the margin, the best way to control costs is to bring new, lower-cost mines into production and into your portfolio to replace some of your higher-cost declining assets. We are doing this. In the next few years, we are bringing in about 1.5 million ounces of new production at about $100 to $200 per ounce. That is where you will really see cost declines.

(f) Scarcity of Skilled Labour

The Minerals Council of Australia (MCA) undertook a study that shows a disconnect for supply and demand for workers and jobs required by the mining industry. In every category, the demand for labour exceeds the supply. This is why in Australia we have such high labour rates. In many of the areas we work in, particularly in Western Australia, the choice for the worker is to get on a plane and fly to one mine or another. It is fly in, fly out. He does not have to move or disrupt his family. Thus if one mine or company in the iron ore business says, "We'll pay you more than the gold business", all he has to do is walk perhaps another couple of hundred feet to another plane and get on that plane to work there. As a result, there is a lot of turnover. We have had 25% or 30% turnover in the past. That scarcity of skilled labour is likely to continue, although we are starting to see a little bit of relief on this front.

(g) Capital Costs

One often overlooked expenditure that is very important to our industry is the capital cost required to maintain production at operating mines. As the current mines mature, high gold prices allow for the production at lower depths and grades, but at increasing capital costs.

While we focus on cash costs as an industry, we must spend a significant amount on sustaining capital. According to a CIBC study, this represents another $200 to $300 per

ounce to the industry's overall cash costs, with expected go-forward increases of 7% to 10% per year. The increasing capital that you must add to just keep continuing to produce in the mine has impacted the amount of free cash flow that the industry can produce.

Project capital costs in the gold industry have also been increasing. Ernst & Young recently released a chart showing that of the companies that reported mine project overruns publicly between 2010 and 2011, the average overrun on those projects was about 71%. These projects are costing much more to build. We know this at first hand and it is not solely for one type of commodity. It is in all resource areas: iron ore, gold, copper, etc. This is a big challenge that we have to manage and it is also going to have an impact on supply.

When you add in exploration and G&A expenses, the all-in costs for the industry are approaching $1,500 per ounce. This was highlighted in a recent UBS report and compares with a figure of approximately $850 per ounce four years ago.

I think there is a perception that the gold industry is making huge cash margins. As you can see, that is not true. When you combine G&A, exploration, interest, capital and cash costs, we are producing at well over $1,000 per ounce. That dramatic impact is shown in the CIBC report. One example of how this has manifested itself is that even though gold prices increased by $1,000 in the space of the past seven or eight years, the free cash flow per ounce has only increased by $100 per ounce. Thus, we have been hearing from investors in recent months that they want more capital returned to them. We have heard them.

You have heard companies like us, and many others, talk about a focus on returns, free cash flow and being more disciplined. The days of growing production for the sake of nominal growth have been replaced with a renewed focus on capital allocation. This is going to result in less money ultimately being invested in lower-return projects at a time when ore grades are decreasing at mines. That is likely to result in a decrease in gold production in the industry going forward.

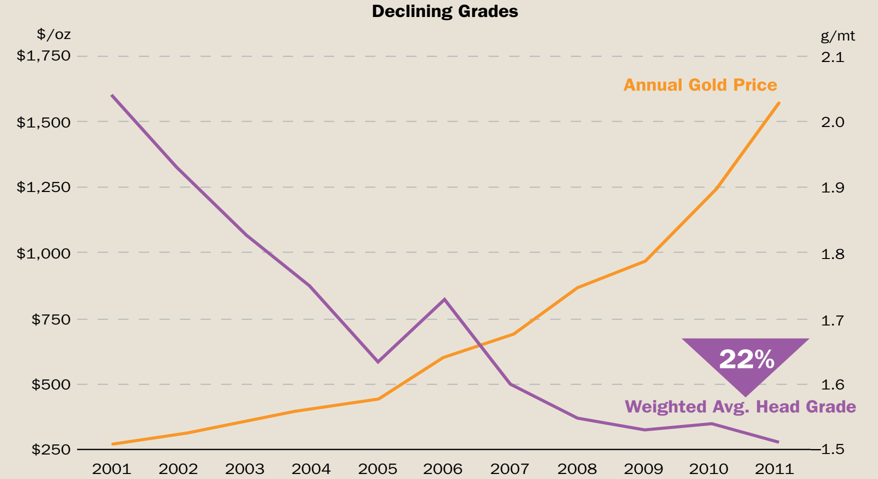
(h) Gold Equities

The difficulties that gold-mining companies have faced on the production and cost side have manifested themselves in making it more difficult for gold equity valuations. In 2004, the price-to-earnings multiples in the gold industry averaged about 80 times. They now average about 11 times and are thus below those of the S&P 500, which are 13. It shows that the lower multiple has been absorbed in the market, as it has seen the challenges that the gold-mining industry has faced. This has correspondingly made it more difficult for many companies, including junior companies, to issue equity, make acquisitions and invest in additional projects or exploration.

The underperformance of the gold equities versus the gold price is well known by many. Investors have opted for a simpler story rather than accept operational and other risks associated with a mining company. If they want to invest in the gold market, many investors buy the ETF, even though traditionally the gold equities have had more leverage. In my view, that should change as high stable prices and the focus on higher returns from the gold equities improves. I believe that we will revert back to gold equity outperformance over the gold price.

(i) Shrinking Valuation

The multiple contractions that we have seen, plus the increases in costs, have hit the valuations of junior gold-mining companies especially hard. A recent PricewaterhouseCoopers (PwC) report found that the market capitalisation of the top 100 junior miners on the Toronto Stock Exchange decreased by over 40% from the end of June 2012. This led to a 60% decrease in the number of those equities, with a market cap of over $100 million. That is also going to make it harder for companies to raise money and to explore and find more gold.



Source: Metals Economics Group

Top Business Risks

(j) Resource Nationalisation

According to Ernst & Young, the top business risk faced by companies involved in metals mining is resource nationalisation. This is key to a decision that a company like Barrick faces, whether we decide to invest capital in a particular country. Less industrialised countries, and often some developed nations, see rising commodity prices as a cure for their current economic problems. That shorter-term focus can blunt the long-term impact of companies like Barrick, who invest in these countries, and our willingness to invest in many of these countries. Often billions of dollars are involved. It will deter investment in those countries if the resource nationalisation threat is there, through tax or other means. Nationalisation is not solely an expropriation of assets. It also occurs through the imposition of punitive measures such as increases in royalty rates, taxes or the renegotiation of tax-stabilisation agreements.

(k) Skills Shortage

Another major issue that we face is a skills shortage. This is a current problem for all mining companies, which I have talked a bit about already. PwC reports that the four largest diversified mining companies by market capitalisation each had labour cost increases of over 8% last year. As I have mentioned, labour costs represent almost 40% of the cost structure and have a dramatic impact on cash costs. The break-even costs of producing gold are going up. In my view, that is providing a base on the gold price.

The demand for skilled labour has risen significantly. The knowledge and experience needed to build and operate mines is in short supply. There is an older generation of qualified geologists and mining engineers who are going to retire soon. There is a dearth of younger, qualified people in those areas. There is so much competition in the commodity space that we all have to really compete for that labour.

(l) Infrastructure Access

Infrastructure access is also an increasing problem. Discoveries are often in very, very remote areas. We are building a mine in very remote areas of Chile and Argentina at 4,500 metres. Conditions are very harsh and it is a six-and-a-half-hour drive to get there. We now have to go further afield to find these mines. We often have to put the infrastructure in place because there is no power, no water or no community. Thus, we have to spend significant amounts of money to do this.

(m) Capital Costs

This needed infrastructure increases the overall capital costs. Cost inflation is part of this. Capital project execution is important. As an industry, we are experiencing tougher and tougher times when building these mines. Mines often cost billions of dollars. Five or seven years ago, we could build a number of mines for $300 million or $600 million. We have just built one that cost almost $4 billion. We are building another one that will

cost between $8 billion and $8.5 billion. This represents a dramatic increase in capital costs.

(n) Maintaining a Social Licence to Operate
Maintaining a social licence to operate has never been more important. There are more stringent environmental standards and a stronger focus on the social licence to mine. There is increased scrutiny on the industry. We must show that we are all committed to sustainable development or we will not be able to build or operate the mines. With that comes a growing number of responsibilities, including those that are regulated and some that are undertaken voluntarily. Other responsibilities include the Equator principles, the IFC's Performance Standards and the OECD's guidelines for multinational enterprises.

> *"There is also a rise in socially responsible investors. We must make sure that we look closely at dealing with the impact of those social investors."*

There is also a rise in socially responsible investors. We must make sure that we look closely at dealing with the impact of those social investors. We are not able to solely focus on cash costs and building mines on time. We must look at the environmental and social considerations more than ever, as are so many more investors. It not only is the right thing to do, but it is good business as well. NGOs continue to exert a tremendous amount of pressure on us. That is becoming much more complicated and we now must spend many, many more millions of dollars dealing with that.

(o) Environmental Impacts of Mining
In terms of the environmental impacts of mining, we must reassure stakeholders, locally and around the world, that we are managing the environment well, including the impact on land, air and water. There is a relatively low amount of trust in the mining industry from the private sector. We are starting from behind the eight ball. We have to work with communities. We have to be part of the solution as we compete with those communities for scarce resources such as water and land.

The reliability of energy sources and the volatile policy and price environment is a challenge. We have to be seen as sharing the benefits in the countries and communities in which we operate. As I mentioned, expectations run very high regarding the benefits that mines can deliver to a country and host community, particularly in developing countries. Thus, we are part of a number of industry associations, some of which we have initiated, such as the ICMM's initiative to better integrate sustainable development, the World Gold Council's 'Conflict-Free Gold' standard to combat the potential misuse of mined gold to fund armed conflict, the Voluntary Principles cross-sector focus on improving the safety, security and protection of human rights around operations, and EITI's focus on improving transparency of payments to governments. We are involved in all of these initiatives. As a mining industry, 10 years ago, we probably would not have had such a huge involvement with both civil society and government. That would have been unusual in the past, but we are now doing it in so many more cases. These are unique partnerships that we have to foster around the globe. However, it increases the challenges of bringing in new production.

Conclusion

The industry's shift in focus is dramatic. We have seen huge changes. Investors are making it clear that they are no longer rewarding production growth to the same extent as in the past. Some gold producers, including Barrick, have responded by re-scoping, deferring or shelving marginal projects altogether. All of the things that I have talked about are major trends that are going to impact mine supply and be constraints to future supply. This industry is like a supertanker. It takes a long time to stop or change directions. You cannot turn on a dime. Most projects that are built right now, or are in advanced construction, will not be affected. However, the outlook for growth in supply in a few years looks more and more under threat. Thus, the supply of gold is likely to be lower going forward. We are not going to see huge growth, even if the gold price goes up considerably. That should then be supportive for the gold price and ultimately result in a healthier industry.

Jamie Sokalsky, President and Chief Executive Officer, Barrick Gold Corporation

Jamie C. Sokalsky was appointed President and Chief Executive Officer of Barrick Gold Corporation on June 6, 2012. He is also a member of the company's Board of Directors.

Mr. Sokalsky joined Barrick in 1993 as Vice President and Treasurer, rising to Senior Vice President and Chief Financial Officer in 1999, and Executive Vice President and Chief Financial Officer in 2004, leading Treasury, Tax, Controllership and Financial Reporting, Internal Audit, Investor Relations and Information Technology.

Previously, Mr. Sokalsky was an executive at George Weston Limited for 10 years. He holds an Honors Bachelor of Commerce degree from Lakehead University and received his Chartered Accountant designation in 1982.

COINS OF THE REALM

Down through the ages, the word *"trust"* has come to have a special meaning as *"the coin of the realm."*

It denotes honesty in transactions of all kinds. Large and small.

In business. In politics. In relations between countries and individuals.

Trust is the basis of our civilization.

It is the foundation of our global economy.

Its importance in our everyday lives is unquestionable.

Yet as recent events have shown, this trust on which so much depends can be just as easily lost.

Even among longtime allies and business partners.

This loss of trust has likely never been more noticeable, more widespread and ultimately more devastating than it is today.

Among governments. Among industries. Among our people and societies.

Everyone agrees that this is regrettable.

It is as damaging to our common cause as it is to our common sense.

But it is not inevitable.

There are companies and institutions of every kind for whom the concept of trust remains a basic principle, a vital watchword — a true "coin of the realm."

Such a company is Dillon Gage.

Since its founding in Dallas, Texas, in 1976, Dillon Gage Metals, a division of Dillon Gage Group, has been dedicated to the best interests of its clients, its customers and its partners in a growing number of specialized fields related to the worldwide metals industry.

In the process, the company has become one of the largest and most respected precious metals dealers in North America, with global operations around the clock.

DG DILLON GAGE EST. 1976
METALS DIVISION

EXPERIENCE. KNOWLEDGE. INTEGRITY. TRUST. SERVICE.

DILLONGAGE.COM

25 Years of the London Bullion Market Association

1987

November
First LBMA Newsletter.

24 November
The LBMA's Memorandum of Association was signed.

1988

12 May
First LBMA Biennial Dinner, Goldsmiths Hall.

First General Meeting of the LBMA.

1 October
Space is sublet for the LBMA from the London Investment Banking Association at 6 Frederick's Place. In 1996, this becomes the registered office of the LBMA.

1989

17 July
– Introduction of the GOFO page on Reuters. Daily contributions are made by the LBMA Market Makers, showing mean composite rates for gold swaps for the first time.

1993

April
– The LBMA publishes a handbook providing details on the structure of the LBMA, procedures for Good Delivery, regulation and statistics as well as the first published Good Delivery Lists for gold and silver.

1994

1 October
The International Bullion Master Agreement (IBMA) is introduced, providing a common set of terms for bullion transactions in the international market.

1995

June
The first edition of *The Alchemist* is published.

1997

January
The LGLR page is introduced on Reuters to show midpoints for gold lease rates based on GOFO and LIBOR means.

29 January
The first set of gold and silver clearing statistics for the London market are released at a press conference.

1998

5 March
A working party, established on an LBMA initiative and headed by the International Swaps and Derivatives Association (ISDA), publishes ISDA Bullion Definitions.

31 March
The LBMA's website is launched.

November
Introduction of SIFO page on Reuters, showing indicative swap rates for silver.

2000

January
A new category of membership, International Associates, is introduced, allowing companies based outside the UK to join the LBMA.

20-21 February
The first LBMA annual conference is held in Dubai.

16 October
ISDA Standard Documentation for Gold Interest Rate Swaps is published.

Silver Anniversary Medallion Competition

In April 2012, the LBMA invited Members, Associates and Good Delivery Refiners to submit entries to a competition for the design and production of a silver medallion to commemorate its silver anniversary. The specification for the medallion was for a one troy ounce 999 or 999.9 silver commemorative medallion, incorporating the LBMA logo, the dates '1987-2012' and any other relevant features that candidates felt appropriate, for example depictions of gold and silver, the responsibilities of the LBMA or famous London landmarks. 10 LBMA companies submitted designs, with a total of 15 designs received. The winning design, from the Royal Mint, was chosen by a distinguished panel of five independent judges. The winning entry was announced at the Silver Anniversary Dinner at the Mansion House on 10 December 2012 and presented as a gift to all those who attended the dinner.

The Design

The obverse design shows the clearly defined logo of the LBMA from a chaotic background. The 'Sun' portion of the logo is selectively plated in fine gold. On the reverse design the line represents the continuous movement of bullion through the market, with the line being the endless spiral described by a point on the circle rolling around the inside edge of the coin. It also touches the edge 25 times to represent the 25th anniversary of LBMA. If you follow the line, it will require eight full rotations to come back to the start point. Eight is a number strongly associated with infinity and constancy, and so symbolises the permanence of gold and silver even when alloyed. In Chinese and Japanese tradition, eight is also a symbol of good fortune and prosperity.

2001

January
First Analysts Survey comparing forecasts for gold, silver, platinum and palladium.

May
A Guide to the London Market, a comprehensive description of products and services available in the London precious metals market, is launched at the second LBMA conference in Istanbul.

2002

January
Changes to the LBMA Membership structure are introduced. The International Associate category is changed to Associate to allow UK-based firms providing services to the London market to join the LBMA. Full members - including Market Makers - based outside the UK are able to join the LBMA for the first time.

16 December
The LBMA leaves 6 Frederick's Place and moves into new offices in Basinghall Street, London, EC2V 5BQ.

2003

December
LBMA appoints a five member panel of Good Delivery Referees.

2004

June
The LBMA introduces a Programme of Pro-active Monitoring of GDL refiners.

2005

December
Template Consignment Agreement is circulated for use by Members.

2009

September
The LBMA Forward Market Makers commence collating three data sets, which are used for valuing end-of-day positions. This data consists of the LBMA Gold Forward Curve, the LBMA Silver Forward Curve and the LBMA Gold IRS curve.

2010

September
Publication of the History of the London Good Delivery Gold List 1750-2010.

2012

January
LBMA's Responsible Gold Guidance becomes an official requirement of Good Delivery.

March
The LBMA introduces the first annual Proficiency Testing Scheme for Gold Fire Assayers.

The LBMA moves into new offices at 1-2 Royal Exchange Buildings, London, EC3V 3LF.

Chairmen of the LBMA past and present: (in order of tenure left to right) Robert Guy, Dick Gazmararian, Alan Baker, Peter Fava, Martin Stokes, Simon Weeks, Jeremy Charles and David Gornall. The only missing former chairman was Kevin Crisp who was unfortunately unable to attend the dinner.

The LBMA Management Committee: (left to right) Peter Drabwell, Philip Aubertin, Steve Lowe, David Gornall, Kevin Roberts, Simon Churchill, Jeremy East, Grant Angwin, Ray Key and Stewart Murray.

Silver Anniver

By Aelred Connelly, LBMA

The LBMA's 13th biennial dinner took place at the Mansion House on 10 December 2012. The dinner was a special occasion as it celebrated the 25th anniversary of the LBMA. The dinner was attended by 325 representatives of Members and Associates, together with guests from other markets and central banks.

The original memorandum marking the foundation of the LBMA was signed on 24 November 1987, and in his speech, David Gornall, Chairman of the LBMA, paid tribute to those who had helped establish the LBMA as well as those who have since played an important part in its development over the past 25 years. In particular, he paid tribute to four of the original signatories: Robert Guy, Les Edgar, Neil Newitt and John Wolff. He also gave special words of appreciation to all past chairmen of the LBMA: Robert Guy, Dick Gazmararian, Alan Baker, Peter Fava, Martin Stokes, Simon Weeks, Jeremy Charles and Kevin Crisp. The LBMA was honoured that they were able to attend the dinner, together with so many other past and present servants of the LBMA and representatives of the London bullion market. David also noted that *"the relationships between the LBMA and its members on the one hand and the central banks on the other have always been a key element in the success of our market and this of course is true of our own central bank"*. So it was fitting that Charlie Bean, Deputy Governor of the Bank of England, was invited as the chief guest to propose the toast to the LBMA.

VIP dinner guests and speakers: (left to right) Robert Guy (Founder Chairman), Steve Lowe, Sir David Howard, David Gornall, Charlie Bean and Stewart Murray.

The original memorandum, incorporating the founding of the LBMA was signed on the 24th November 1987. Pictured are four of the original signatories: (left to right) Les Edgar, John Wolff, Neil Newitt and Robert Guy.

rsary Dinner

In his speech, Charlie traced the history of the London bullion market back to the 1670s, when Moses Mocatta crossed the North Sea from Amsterdam and founded a bullion brokerage firm in Camomile Street, which interestingly preceded the establishment of the Bank in 1694. He also referred to the Bank's more recent involvement in the bullion market, and specifically its role in establishing the LBMA, when he noted *"the collapse of Johnson Matthey led not only to a new approach to banking supervision, but also to the Bank taking over supervisory responsibility for the foreign exchange and bullion markets. We needed a body to help us draft a suitable Code of Conduct and more generally to represent the views of participants in the bullion market. The result was the incorporation of the LBMA 25 years ago this Friday. Since then, the Association has played a quite invaluable role in maintaining refining standards, fostering good trading practice and representing the interests of the members of the wholesale bullion market more generally."*

And finally, a special word of thanks to Robert Guy, who stepped in at late notice to give the Response on behalf of the guests. Robert closed proceedings with a rousing address in his own inimitable style. Perhaps he should consider coming out of retirement as an after dinner speaker.

Macro Economic Outlook for Central Banks

By Dr Olivier Ledoit, Permanent Research Fellow, University of Zurich

The following is an edited version of a speech made at the LBMA Bullion Market Seminar at Merchant Taylors Hall, London, on 10 December 2012.

Executive Summary in 10 Bullet Points

- Central bank policy is getting looser around the world
- Macro-economic outlook: this is bad for the long-term rate of growth
- Solution: officialise gold as second currency alongside national paper money
- Research shows coexistence of two currencies in the same country can be beneficial
- Changes the incentive structures of all the players
- If more than 10% of citizens use gold as money: signal to tighten monetary policy
- People vote with their wallets
- Advantage: will boost central bank independence and reduce public sector profligacy
- While preserving central bank ability to print money to solve genuine crises
- Macro-economic outlook: this will be good for the long-term rate of growth

I. Current Framework

1. Legal Monopoly

The first important point about the current framework is that central banks control the money supply because they have a monopoly on the creation of money. This legal monopoly is granted to them by the state and its institutions. It is also enforced by the state police: if you start printing money in your basement with a colour copier, the police will come and arrest you. For these reasons, central banks are intrinsically dependent on the state for their very existence. No state, no monopoly, no central bank.

2. Independence

At the same time, in the current environment, central banks claim and try to be independent. But how independent can they be from the entity – in this case, the state – that guarantees their very existence and their power? There are some limits. There is an apocryphal quote that says: "The Fed is independent from the US Administration – as long as it does exactly what the Administration wants it to."

3. Trade-Offs

There are three players: the first player is the state, the second the central bank, and the third player is the market (or the citizens/the economy). The central bank is caught in the middle. It would like to do the right thing for the citizens, but the state is leaning on it to do the wrong thing. We have to change the power relationship between these three entities in order to make any permanent change to the situation.

There is a trade-off between the possible actions that a central bank can take, and I will give you the extreme possibilities. One is that monetary policy is completely obedient and subservient to the desiderata of the administration. An extreme example of that is Austria from 1914 to 1924, when there was hyperinflation. I could also have given the recent examples of Yugoslavia, Zimbabwe, etc. The other extreme is when the money supply is exogenously determined. An example would be the US prior to World War I. In that case, gold was money, so however many ounces of gold were in the US was the quantity of money, and that was completely independently determined.

4. Pros and Cons

Right now, we are somewhere in the middle, which is probably a good thing. The pros and cons of each extreme of the trade-off are obvious. If you have a responsive central bank that can print money and throw it at any problem, you can get out of crises more quickly.

I believe that, in terms of the evolution of the economy, there is path-dependency. If you get stuck in a bad situation, you could remain there for a long time. The best thing to do is to take some action financed by printing money out of thin air.

The advantage of not being able print money out of thin air is more of a long-term advantage in terms of the average growth rate of the economy. Indeed, when money is a stable yardstick of value, the division of labour between different market participants is enhanced; i.e., I am willing to exchange my labour against your goods at a price which is measured by the money price of the goods or the labour. I know what those prices are and I trust them, and there is very little uncertainty and conflict. We know the value of things. It encourages the division of labour. It also encourages the accumulation of capital, because, in this case, interest rates tend to be higher than they would be under current policies.

> *"The advantage of not being able print money out of thin air is more of a long-term advantage in terms of the average growth rate of the economy."*

Capital accumulation, as we know, is the only way to make labour more productive. I have snow outside my house in Switzerland. I can either shovel it with a shovel or I can buy a snowplough that costs about 3,000 Swiss francs. It is, however, very effective and I can clean up my driveway much more quickly than if I used a shovel or just my bare hands. Clearly, then, my labour is more productive once I accumulate some capital. As a result, the long-term GDP growth rate goes up. There is a famous study by Carmen Reinhart and Ken Rogoff that says that, if you have too much government debt that is facilitated by the central bank having loose policies – eventually, above 90% debt-to-GDP ratio – long-term growth rates are cut by 1% per annum.

We want the best of both worlds, and the optimum is in between. While this is not an exact science, there are some long-term advantages to being fairly inflexible, there are some short-term advantages to being fairly loose, and the optimum is probably somewhere in between, where you have a combination of the short and the long term, which both have to work in your favour.

II. The (mis)measurement of inflation

The way that this is usually measured is through inflation. We might say, 'We are going to have a very loose monetary policy, but only as long as there is no inflation in the economy'. The problem is that inflation is measured by the government. The government has every incentive to under-report inflation; certainly, a few years ago, they did it in Argentina because they had inflation-indexed bonds, and the head of the official statistics office resigned over that. Everybody knew that they were underestimating it by about 8%. If you do it by 8%, clearly it is a bit too obvious, and the Argentines did not do it discreetly enough.

There are, however, some clever ways to do it a bit less manipulation, such as the notion of hedonic adjustment. I have an iPhone 4S, prior to which I had an iPhone 4. This has 64GB of memory and the other had 32GB. They are the same price – $500. With hedonic adjustment, however, this one is counted as being half the price, so inflation goes down. I am only using 3GB, so it does not make it much better for me that I have 64GB instead of 32GB, but this is the kind of accounting that they do.

Another trick is the geometric mean: instead of having the average of all the percentage rises in all the different goods being an arithmetic mean, which is the standard mean, they take the geometric mean, which involves some logarithms. You can prove mathematically that it will always be a lower number. All these changes took place in the 90s. They started in the US and they were adopted very quickly pretty much everywhere else in the developed world without much of a debate. Government statisticians also exclude house prices – sometimes they include rents but not the price of the house; they often exclude food and energy prices, but people have to eat food and to put some gasoline into the tank of their car.

This led to some literature about behavioural psychology in public finance. There are psychologists who wonder why it is that people on the street perceive inflation to be much higher than what the government reported. You can interview random people and they say, 'Yes, inflation is and feels about 5% or 6% per year'. When you look at the government numbers, it is 0% or 1% – so why the gap? This literature did not exist before the 90s. Presumably, then, the man on the street at that time accepted the government numbers. So government-reported inflation may not be the most reliable indicator for picking the optimal trade-off between loose and tight monetary policy.

III. Short- versus Long-Termism

The problem in the current state of the world is that the balance is shifting towards more short termism and looser monetary policies. Without wanting to point the finger at any one bank or event, in my opinion central banks are very responsive to government wishes: they end up funding or helping fund, through their actions, chronic budget deficits. I am French, and the last time France had a balanced budget was in 1980. This is only possible because the interest paid by the government to service that debt is low, because the central bank is setting those interest rates quite low. This was not the intended role of central banks.

I am not a Keynesian, but I guess he is as good a reference as you are going to get these days. He said that it should not be to fund chronic budget deficits that you increase money supply, but to respond to a crisis. Once the crisis is over, you mop up the excess liquidity. This is exactly what happened during the Napoleonic Wars. Wellington's statue is conveniently located near to the Bank of England. Napoleon created a crisis on the Continent, and he had to be stopped somehow. They had to pay the soldiers to go and defeat him and, after he was incarcerated in St Helens, prices eventually fell back down to their original levels.

But this is not what is currently happening. Nowadays, we see the money supply increase in response a crisis, but it does not come back down afterwards; if anything, it resumes its inexorable upward trend from a higher level. This is problematic. Systematically loose central bank policies hurt the long-term GDP growth rate, the excuse being to boost the short-term GDP growth rate. Yet you should not sacrifice the long term for the short term.

IV. Solution

The solution that I recommend is based on my research into the coexistence of different monies. The basic idea is that, in the economy, some citizens are short-term oriented and others are later long-term oriented. Let them vote with their wallets on how short- or long-term oriented the policy of the central bank should be. They will vote with their wallets if we allow them the choice between two different currencies. One would be hard and the other soft. The hard currency has to be the hardest possible, which I presume is gold, because you cannot print gold out of thin air; you have to go into the ground and drill it out, which is very expensive. If gold was officially made legal tender, alongside paper money, then people would have a real choice between two different currencies, and their choice would be very revealing and informative.

> *"The problem in the current state of the world is that the balance is shifting towards more short-termism and looser monetary policies."*

The price of gold coins would have to float freely with respect to the value of paper money and, every day, there would be an exchange rate between the two currencies. This is not a problem. For example, in Switzerland for many years, even before the peg of the euro to the Swiss franc, you could pay at service stations in euros, and all prices were freely floating. The oil price was floating, as was the euro/Swiss franc exchange rate, and service stations would display the price of one litre of gasoline in both currencies at any point in time. So it is not a problem practically.

The advantage of this dual currency system is that you would be able to monitor the percentage of usage of gold. That is the interesting bit, because if you have more gold usage than is tolerated by the central bank – I suggest taking 10% as a cut-off but it could be any other number – that would mean that people were voting with their wallets against paper money and against a central-bank policy that was too loose. If, on the other hand, only 8% of people were paying the butcher with gold coins, that would mean that there is quite a bit of leeway for the central bank to have a looser monetary policy and to throw money at various problems that need to be fixed, of which there are always some.

> *“The advantage of this dual currency system is that you would be able to monitor the percentage of usage of gold.”*

The way this would work is similar to the process of dollarisation that took place in certain developing countries in the 60s, 70s and 80s. What dollarisation means is that, if a developing country's central bank is too loose and is abusing the printing press, the citizens start to vote with their wallets against the local currency by trading with one another in dollars. That was at the time when the dollar was as good as gold. Nowadays, this assumption is more questionable, but it is something that existed. Ultimately, people who used dollars were saved from hyperinflation and its deleterious consequences. This also served as a signal to the government and the central bank to stop abusing the printing press. What I am recommending is basically the same idea, but with gold instead of dollars. Also we would have to make it official: some dollarisation was done on the black market, whereas the monetization of gold has to be legally endorsed in order to function properly.

V. Advantages

1. Power to the People and to Central Banks

In terms of advantages, we would have a new input into monetary-policy decisions: the percentage usage of gold, compared to the target usage rate. It is much better than inflation, because it reveals the real preferences of the people. Each citizen would individually vote with his or her wallet, which would give central banks leverage over the state to refuse funding chronic deficits. In turn, the state would have to cut back wasteful spending, which would be positive for the economy. Even if it all failed and you could not convince the state to stop its profligate ways, at least you could protect a fraction of the capital of the nation, which is better than nothing.

From the point of view of a central banker asking ‘What is in it for me?': on the one hand, you lose control of 10% of the monetary mass, which is a mall negative; but on the other hand, you regain the right to tighten and to say no to the government when it says, ‘Print me some money so I can pay next month's bills', which is a huge positive. Right now, central bankers have the right to loosen but they do not really have the right to tighten or, for some reason, they are not exercising it quite as harshly as they used to. On balance, this is a net positive for the central banker.

2. Democratic Legitimacy

It would also give central banks democratic legitimacy, because the president is elected by 51% of the people, but the paper currency managed by the central bank is chosen by 90% of the people. The central banker could say: ‘90% of people like our paper money, so we are doing a good job', which would, once again, reinforce their independence from political power and boost the long-term growth rate of the economy.

> *“My recommendation to central bankers, then, is to not oppose these initiatives. They do not threaten you, instead they give you more leverage against the state when you want to tighten.”*

VI. Recommendation

My recommendation to all central bankers in the world is to do absolutely nothing, because there are popular initiatives afoot in Malaysia, Utah, Switzerland, Mexico, etc, to legalise, as a means of payment and savings, gold and/or silver coins. The likelihood of some these initiatives going through is quite high.

- In Malaysia, it is already working. The gold dinar and silver dirham are sharia-compliant and you can use them in certain parts of Malaysia to buy a chicken on the market.

- In Utah, Governor Gary Herbert legalised the use of gold and silver coins as legal tender in 2011, and the Utah Precious Metals Association (UPMA), which is modelled somewhat on the LBMA, is making good progress on having people do business in Utah with such coins.

- In Switzerland, there is a popular initiative that is asking for 100,000 signatures. Under Switzerland's unique democracy, obtaining 100,000 signatures allows you to hold a referendum, which, if accepted, goes straight into the constitution, bypassing any potential opposition from the political elites. They are in the process of raising funds to finance the signature collection campaign.

- The project in Mexico is more oriented towards silver coins.

My recommendation to central bankers, then, is to not oppose these initiatives. They do not threaten you, instead they give you more leverage against the state when you want to tighten.

VII. Conclusion

The bottom line is that, whether or not we like it, the countries that legalise gold as concurrent currency and monitor the usage of gold as money among their people to avoid an excessively loose monetary policy will have a long-term boost to their GDP growth rate and, as a result, will outgrow, outspend and, eventually, dominate those countries that do not adopt such a policy.

Dr Olivier Ledoit Permanent Research Fellow in the Department of Economics, University of Zurich

Dr Olivier Ledoit is Permanent Research Fellow in the Department of Economics at the University of Zurich. He is also Visiting Professor of Finance at HEC Business School in Paris and at the UCLA Anderson School of Management. Prior to that he was Managing Director at Credit Suisse in London, responsible for the Statistical Arbitrage desk in the Proprietary Trading unit. He is the author of over a dozen academic papers published in the top peer-reviewed research journals in the fields of Probability Theory, Statistics, Finance and Economics. He holds a B.Sc. in Engineering from Ecole Polytechnique in Paris and a Ph.D. in Finance from the Massachusetts Institute of Technology.

*Your **global partner** for precious metals*

Active in the physical and non-physical markets for almost a century, our award winning[1] dedicated team offers you a 'one stop shop' for precious metals trading, investing and hedging:

– Gold, silver, platinum and palladium
– 24h global service from hubs in Switzerland, the US, Singapore and the UK
– Physical precious metals custody in our Swiss vaults
– Coins: trading, handling and storage
– Structured products and tailor-made hedging solutions
– Full range of OTC derivatives
– Gold, Silver, Platinum, Palladium ETF

Quality, security and competitive pricing are backed by seamless clearing and execution and supported by market-leading research. The UBS Precious Metals team continues to be the partner of choice around the world. How can we put our resources to work for you?

Risk & Energy Risk COMMODITY RANKINGS 2012

Zurich: +41-44-239 4111
Lugano: +41-91-801 9990
Geneva: +41-22-389 5335
Stamford: +1-203-719 1178
Singapore:* +65-6495 3757
London:* +44-207-567 6752

*non physical only

Intended for investment professionals only

We will not rest UBS

www.ubs.com/preciousmetals

1. No.1 in Precious Metals Overall Dealers and No.1 for Research in Precious Metals, Risk and Energy Risk Commodity Rankings 2012. © UBS 2012. All rights reserved. 41687

2013 Forecast Summary

Metal	1st Week January 2013 (2nd-10th Jan incl)	Average 2013 Forecast	2013 Year Average
Gold	$1,665	$1,753	$1,669
Silver	$30.36	$33.21	$31.15
Platinum	$1,575	$1,682	$1,552
Palladium	$689.64	$744.03	$644.33

Forecast contributors expect all four metals to increase in price during 2013 by at least 5%. Forecasters however, predict continued uncertainties in the global economy mean that they are also expecting significant volatility in prices for all metals.

In comparison to the previous few years' double digit performance, there was only a single digit rise in the price of gold of just over 4% in 2012. Analysts are expecting a similar increase in price in the price of gold in 2013, with the average price forecast to increase by 5.3% against the price in the first week of January 2013. Analysts are certainly less bullish than they were this time last year when they predicted a double digit price increase of more than 10% in 2012. And whilst last year was the 12th consecutive year in which the gold price has risen, it was the also the first year since 2007 not to record a new all time high. Analysts are forecasting that the gold price will trade in the range $1,529 to $1,914, with an average price forecast of $1,753. Analysts argue that factors which could push the gold price towards the upper end of the range include the expansion of the US balance sheet through QE3, continued weakness in the US dollar, an expected increase in physical demand from China and India, muted growth in the supply of gold as well as further increases in net official sector purchases. On the downside analysts cite a strengthening of the dollar, an increase in global real interest rates and a reduction in physical demand, particularly from India and ETF funds, as factors which could push the price towards the bottom end of the range.

Analysts are predicting an increase in the price of all four metals in 2013. They are most bullish about the prospects for silver, citing limited supply growth coupled with increased industrial and investor demand, as positive factors helping to push up the price. They forecast that the average price in 2013 will be $33.21, 9.4% higher than the average price in the first week of 2013, with the price trading in the range between $26.20 to $39.75. But analysts warn that the price may also come under pressure from larger surplus of mine supplies and a downturn in the global economy.

Platinum has been dominated by disruption in supplies as a result of the industrial unrest in South Africa, which accounts for 75% of total world supply. This is expected to continue and together, with further growth in markets, such as China, mean that analysts are bullish about the prospects of platinum, forecasting an average price of $1,682; 6.8% above the average price in the first week of 2013.

The price of palladium is also expected to benefit from a negative impact on supply, in particular from a continued slowdown in sales from Russia, where stockpiles appear to be depleted. Analysts cite supply constraints coupled with increased industrial demand, particularly from the autocatalyst market, as factors which could see the average price in 2013 rise to $744, a $100 increase on the average price in 2012.

To find out more about what will happen to prices for precious metals this year, and what the factors likely to affect their price, read the views of the experts in the full Forecast Survey, which is available on the LBMA website.

2012 Forecast Winners

Metal	Actual 2011 Average	Actual Average 1st week Jan 2012	Average Forecast 2012	Actual 2012 Average	Winning Forecast	2012 Winning Analyst	Company
Gold	$1,572	$1,603	$1,766	$1,669	$1,650	René Hochreiter	Allan Hochreiter (Pty) Ltd
Silver	$35.11	$28.96	$33.98	$31.15	$31.00	Thorsten Proettel	LBBW
Platinum	$1,720	$1,412	$1,624	$1,552	$1,565	Tom Kendall	Credit Suisse
Palladium	$733.63	$655.00	$735.52	$644.33	$662.50	Frederic Panizzutti	MKS (Switzerland) S.A.

The LBMA is delighted to congratulate the four winners of the 2012 Precious Metals Forecast Survey (see table above).

The aim of the LBMA Forecast is to predict the average, high and low price for the year ahead in each metal as accurately as possible. The prediction closest to the average price wins (based on the average $ daily pm fixing price). In the event of a tie, the forecast range is taken into account.

Many thanks to all the Forecast contributors for another excellent year. Forecasters correctly predicted price rises in 2012 for gold, silver and platinum, although they were more bullish in their predictions compared to the actual average price outturn for 2012. Forecasters were also bullish about the palladium price, predicting a 12.3% price increase, although the average price actually fell by 1.6% in 2012 (compared to the average price for the first week of 2012). Congratulations to the four winning analysts. The most impressive forecast prediction was by Thorsten Proettel, who picked up the winning prize for silver by predicting a price of $31, which was within 0.5% of the actual average price for 2012. Next best was Tom Kendall's price prediction for platinum (0.8% difference from the average price), followed by René Hochreiter for gold and Frederic Panizzutti for palladium, with differences of 1.1% and 2.8% respectively. Commiserations go to Carl Firman, who was in contention to win in two metal categories but unfortunately lost out marginally in both.

The LBMA is grateful to PAMP SA for its generous donation of four 1 oz gold bars which will be awarded to the 2012 winning analysts in each of the four precious metal categories.

Bubbles in Gold?

By Brian Lucey, Professor of Finance, Trinity College Dublin and Fergal O'Connor, current holder of the LBMA bursary, PhD student a Trinity College and part-time lecturer at Preston University

In the following article Brian Lucey and Fergal O'Connor consider the characteristics of a gold bubble, how financial economics tests for bubbles and what academic studies have to say on the issue.

Asset Bubbles

Whether the current price of gold is a speculative bubble is a question that both investors and academics would like to answer definitively. One of the unfortunate characteristics of bubbles is that, driven as they are by compounding, they inflate very rapidly in their terminal period. You are sure something is a bubble only when it has burst. After over a decade of price rises from $300 up to $1,900 an ounce, gold does look somewhat like it is in a bubble at first glance.

From an academic perspective, a bubble is not simply a long-run rise in price or an historically high price. A bubble happens when the price of an asset rises above the price that can be justified by its fundamentals, the value discounted to today's terms of all future cash flows or benefits that can be earned by owning it. This implies that the price of an asset should only change when these fundamental factors change, a price rise for any other reason indicates a bubble.

The bubble element is included in the price because investors share a mistaken belief which overestimates the future benefits of owning the asset. Bubbles are intrinsically social phenomena. This bubble component increases in value over time, giving them the return required and perpetuating the bubble's existence. Once this shared belief falls apart, the bubble collapses to zero and the asset's price returns to its true value. In fact, bubbles can overshoot on the downward side if investors' pessimism in response to the bursting causes them to mark down the asset too aggressively.

Testing Gold

The first problem of deciding whether a bubble exists in gold, is that there is no universally agreed fundamental determinant of gold's value. Some researchers use gold's convenience yield, the benefit that the holder of a physical commodity earns relative to the holder of a futures contract, such as easy access for production. Others build models based on the macroeconomic factors that are believed to drive gold price changes such as inflation and the value of the US dollar. Others yet use relationship models to infer the 'true value' of gold. Because of this lack of agreement on what it is that is the fundamental determinant, we find a diverse set of answers to the bubble question, as researchers make use of the variety of models that exist in order to look for bubbles.

Our recent research is, we believe, the first to use gold lease rates as an observable cashflow that can be earned from owning gold.

Relationship models look at statistical facts about the asset or its relationship with its fundamental driver that could indicate a bubble's existence. These most commonly look for long-run equilibrium relationships between the asset and its fundamental driver. If no long-run relationship is found, then it may be that a bubble exists. But as we have no way of knowing how much data is needed to look at the long run, these tests may say 'bubble' when we simply do not have enough data to answer the question.

Lucey and O'Connor (2012) look at the long-run relationship between gold prices and gold lease rates. We look for periodically bursting bubbles, a class that can form, burst and reform, which seem closest to what we would expect to observe in reality. We find it probable that when we account for the statistical properties of gold, no bubble exists, but gold does vary between two regimes, one with a higher variance corresponding to times of market stress, when gold's safe-haven characteristics become important.

Bialkowski, Bohl, Stephan and Wisniewski (2011) apply the same method, seeking periodically bursting bubbles, but use convenience yield, with a similar finding of no bubble since 1978. Pindyck (1993) found a bubble using gold's convenience yield but used a more basic method and a shorter data set. Diba and Grossman (1984) looked at the opportunity cost of holding gold, the interest that could have been earned on commercial paper, to see if changes in its value were based on this, and found that the price of gold was entirely based on market fundamentals. Baur and Glover (2012) look at the statistical characteristics of the gold price, without making reference to any fundamental driver. They find evidence of a bubble both in the 1980s and in this century. They ascribe this finding to the actions of speculative traders.

Explicit models differ in that they attempt to compute the price that should be paid at any time in the past for the gold. Bertus and Stanhouse (2001) build an explicit model of the supply and demand for gold to derive a fundamental price and use this to estimate the difference between the market price and its 'true value' every month. They find that while there are differences, these are insignificant and do not indicate a bubble.

Counting models, also known as hazard models, are different in that they do not compare the time series behaviour of the determining factors of the value of the asset with its price, meaning that we do not need to worry about correctly specifying the underlying model for pricing the asset. Instead, they use the fact that if a bubble is present, we will observe a run of positive excess returns and a decrease in the probability of a negative excess return. When, Jirasakuldech and Emekter (2009) apply this idea, specifying the excess return on gold as its interest-adjusted basis, gold's convenience yield less its cost of carry. They find evidence of a bubble in the gold price.

The conflicting answers found in the academic literature are a problem for all research on detecting bubbles. We cannot say definitively whether a bubble has been detected or the fundamental driver(s) of the asset's price changed. And this assumes that we know the true driver of gold's value. Bubbles can only be shown to have existed conclusively by looking in the rear view mirror, which doesn't help investment decisions in real time.

One final point from bubble theory against a bubble existing in gold: once a bubble bursts, the price is expected to fall back down to its true price, as was seen after the dotcom bubble and the US housing bubble. However, if a bubble did exist in gold, its price fall from circa $1,900 should have indicated the bubble bursting and a fall in price back to its 'true' level. But we saw the price fall to the just below $1,600 and recover into the $1,700s and continue to fluctuate in this range in 2012. If this was the bubble bursting, it was a small one.

Dr Brian Lucey is Professor of Finance at the School of Business at Trinity College Dublin. He studied at graduate level in Canada, Ireland and Scotland, and holds a PhD from the University of Stirling. His research interests include international asset market integration and contagion; financial market efficiency, particularly as measured by calendar anomalies and the psychology of economics.

Fergal O'Connor is a PhD student at Trinity College and part-time Lecturer at Preston University. He holds a MA in economics from University College Cork and is the present holder of the LBMA Bursary.

The Fifth LBMA Assaying and Refining Seminar 10-12 March 2013

The Guoman Tower Hotel
St Katherine's Way
London
E1W 1LD

Sunday 10 March

18:30 - 20:00
Informal Networking Reception, Guoman Tower Hotel

Day One - Monday 11 March

10:00 Registration and Coffee

10:30 Introductory Session
- The LBMA and its Role
- GDL Procedures – Recent Changes to the GDL Rules and results of Proactive Monitoring
- The Role of an LBMA Referee

12:00 Lunch

13:30 Session 2: Weighing
- Electronic Weighing – Gold and Silver – A Refiner's Experiences
- Electronic Weighing – Gold and Silver – A Vault's Experiences
- London Rounding Rules
  – How they are developed and how they are applied

14:30 Coffee Break

15:00 Session 3: Pouring and Casting
- Continuous Casting of Silver Bars
- Use of the IECO Flameless Tunnel Casting System for the Production of Good Delivery Bars
- Panel Discussion: Fundamentals of Casting a Good Delivery Bar

16:30 Close of Session

Drinks Reception 18.30 and Dinner at 19:00 Sponsored by IECO at Dickens Inn, Marble Quay, St Katherine's Way, E1W 1HU (it's a short walk from the Guoman Tower Hotel!)

Day Two - Tuesday 12 March

09:30 Session 4: Assaying
- ISO Assaying and Analytical Methods for Precious Metals
- Fire Assay vs Spectrographic Analysis in ~995 gold
- Uncertainty of Measurement
- Use of ICP Mass Spectrometry for Precious Metals
- XRF Analyses of 995+ Gold

11:00 Coffee Break

11:30 Session 5: Reference Materials and Proficiency Testing
- Proficiency Testing Scheme for Gold Fire Assayers – Reports on 2012 and 2013 Results
- Proficiency Testing Scheme – Technical Analysis
- AuRM3 – Progress Update
- Pt & Pd Reference Materials Project

12:30 Lunch

14:00 Session 6: Due Diligence for Gold
- The LBMA's Responsible Gold and Audit Guidance
- Implementing the LBMA Responsible Gold Guidance – A Refiner's Experiences

15:20 Session 7: Forensic Applications of Assaying
- Fingerprinting of Gold
- Creation of an Artificial Elemental Fingerprint for the Forensic Tracking of Gold

16:15 Closing Panel and Concluding Remarks

16:45 Close of Seminar

The registration fee is £350 +VAT for LBMA Members, Associates and Good Delivery List Refiners. Representatives of other organisations may also participate for a fee of £500 +VAT.

Registration is now open.

Please visit www.lbma.org.uk

or contact events@lbma.org.uk

DIARY OF EVENTS 2013

FEBRUARY

28
Members Seminar & Annual Party
London, UK

MARCH

10-12
LBMA Assaying and Refining Seminar 2013
The Guoman Tower Hotel, London, UK
www.lbma.org.uk

APRIL

6-7
Dubai Precious Metals Conference 2013
Almas Tower, Dubai, United Arab Emirates
www.dpmc.ae

16-19
Denver Gold European Gold Forum 2013
Zurich, Switzerland
www.denvergold.org/gold-forums/egf-2013

MAY

2-3
OECD Gold Forum
Paris, France

13
Johnson Matthey Platinum 2013 Launch
London, UK

JUNE

22-25
IPMI 37th Annual Conference
J W Marriot, Pheonix, Arizona, USA
www.ipmi.org/seminars/conf_detail.cfm?id=31

AUGUST

5-7
Diggers & Dealers Forum 2013
Kalgoorlie, Australia
www.diggersndealers.com.au

SEPTEMBER

18-20
Colorado Precious Metals Summit
Park Summit, Colorado, USA
www.precioussummit.com

22-25
Denver Gold Forum 2013
Hyatt Regency, Denver, CO, USA
www.denvergold.org/gold-forums

26-29
World Gold 2013
Hilton Brisbane, Queensland, Australia
www.ausimm.com.au/worldgold2013/

29/09-1/10
LBMA Precious Metals Conference 2013
Hilton Cavalieri, Rome, Italy

OCTOBER

7-10
LME Week 2013
London, UK
www.lme.com/lmeweek.asp

27-31
Conference of Metallurgists 2013
Québec, Canada
www.metsoc.org/com2013.asp

NOVEMBER

4-5
Europe Precious Metals Summit
Park Hyatt, Zurich, Switzerland
www.precioussummit.com

Regulation Update

By Ruth Crowell, Deputy Chief Executive, LBMA

Third-Party Audit Guidance – Finalised

The LBMA finalised its Third-Party Audit Guidance for the Responsible Gold Guidance in January 2013.

The LBMA requires all Gold Refiners on the Good Delivery List to comply with the Responsible Gold Guidance ("the Guidance"). The Guidance aims at combating systematic or widespread abuses of human rights and avoiding contribution to conflict, and expects Refiners to comply with high standards of anti-money laundering and combating terrorist financing activities. Step 4 of the Guidance requires Refiners to arrange for an independent third-party audit of the supply chain due diligence. Regular third-party audits are required for any Refiner accredited by the LBMA so as to ensure continuous monitoring and (where applicable) improvement of responsible gold sourcing practices.

LBMA Responsible Gold Guidance Timetable

Jan 2012	LBMA Responsible Gold Guidance became a formal requirement of Good Delivery.
Jan 2013	**LBMA Audit Guidance was finalised.**
Q1 2013	LBMA encourages audits to take place for 2012 production.
31 Dec* 2012	First Voluntary** GD Refiner Audit Reports for 2011 Due.
31 Dec* 2013	First Mandatory GD Refiner Audit Reports for 2012 Due.

* For some Refiners this may be 30 April 2013, as an LBMA Audit Report will be due no later than one year after the closing of the refiner's financial books.

** While an audit report for a refiner's 2011 production is not mandatory, it is encouraged especially for refiners who need to meet EICC/CFS requirements.

The above timetable gives refiners two years to produce an audit summary report, which will then be reviewed by the LBMA Physical Committee.

LBMA Third-Party Audit Guidance

The LBMA Third-Party Audit Guidance is intended for use by auditors (also known as practitioners, assurance providers, auditing bodies, assessors or assessment teams) who have been engaged to perform a third-party audit of the Refiner's gold supply chain in accordance with Step 4. This new document sets out guidance on the application of audit concepts and requirements specific to these types of audit engagements. This document also provides practical guidance on audit testing, audit deliverables and the audit implications associated with non-compliances. Refiners may refer to this document to understand the elements of the third-party audit and to assist them in establishing monitoring activities over their compliance with the Guidance.

The LBMA recognises that there are different types of audit approach that Refiners may be used to, or are more familiar with. For this reason, the LBMA will accept an audit engagement performed in accordance with the internationally recognised auditing standard ISO 19011:2011 or the non-financial assurance standard ISAE 3000. The LBMA will also accept an audit performed by government bodies. The Third-Party Audit Guidance provides auditors with assistance with respect to ISO 19011:2011 and ISAE 3000. The LBMA is also exploring the creation of Best Practice Documents for Refiner's getting up to speed with the LBMA Responsible Gold Guidance requirements.

LBMA & the World Gold Council – Mutual Support

LBMA supports the publication of the World Gold Council's Conflict-Free Gold Standard in October 2012. The LBMA also supports the work that has gone into developing a common approach that gold producers can use to demonstrate that their gold is produced from operations that are not causing, supporting or benefitting armed conflict. The LBMA formally recognises its support and recognition of the WGC standard in the LBMA Third-Party Audit Guidance.

The WGC Conflict-Free Gold Standard has been designed to support refiners in meeting their due diligence requirements. Miners who conform with the Conflict-Free Gold Standard will issue a Management Statement of Conformance. This certificate may be provided to the refiner as supporting evidence to demonstrate efficient compliance with the requirements of the LBMA Responsible Gold Guidance.

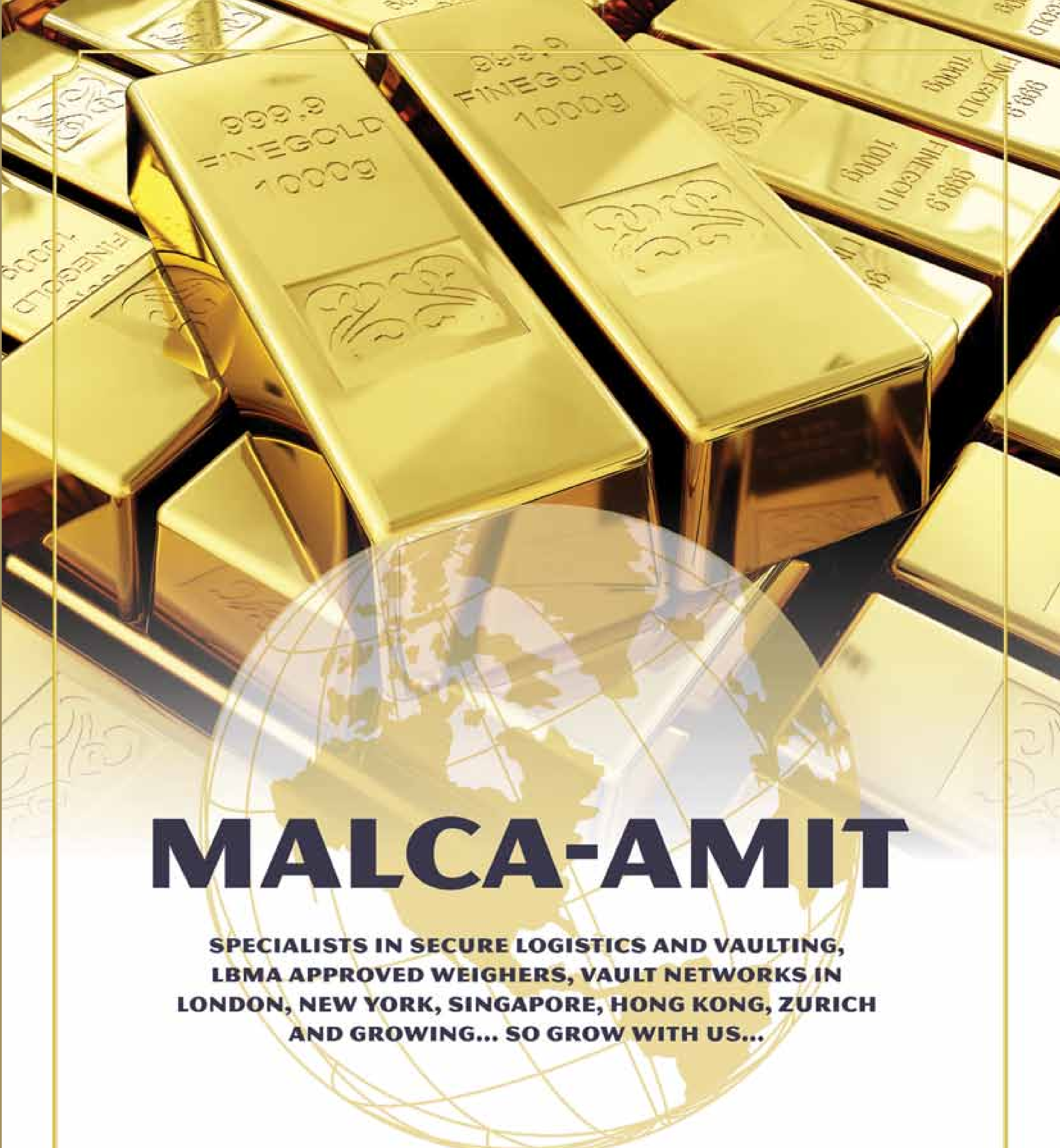
The mutual recognition of the LBMA and the WGC represents another important step in developing industry-led approaches that are compatible and mutually supportive in combating potential financing of unlawful armed conflict. The LBMA is committed to the harmonisation of requirements with other gold supply chain initiatives. The LBMA has also agreed mutual recognition of conflict-free audits with EICC-GeSI and the Responsible Jewellery Council.

The mutual recognition means audit efficiency for gold refiners as well as the industry as a whole. Collectively, these industry-led approaches will support the over-arching OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas and help different sectors of the gold supply chain ensure that they have the appropriate processes, systems and controls in place to adhere to the Guidance.

Basel III Implementation – Update

At a global level, the Basel Committee released a revised version of Basel III's Liquidity Coverage Ratio on 7 January, 2013. While this new version did not include gold specifically, the rules are now less onerous for banks than expected and will not be fully enforced until 2019 (four years later than originally expected).

At an EU implementation level, the Europe Parliament vote (originally scheduled for September/October 2012) was delayed for various reasons and is now expected sometime in January 2013. Natalie Dempster of the WGC is optimistic that European legislators will include gold in their legal text for implementing Basel III, which should be issued shortly.



For information or enquiries please contact
info.bullion@malca-amit.com
or call our UK office on +44 2088149850
www.malcaamit.com

MALCA-AMIT
DELIVERING ABSOLUTE
PEACE OF MIND

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

On 7 November, 2012, the LBMA's five Referees were reclassified as Ordinary Members:

Argor-Heraeus SA
Metalor Technologies SA
PAMP SA
Rand Refinery Ltd
Tanaka Kikinzoku Kogyo K.K.

On 31 December, 2012, Portigon AG (formerly known as WestLB) resigned as an Ordinary Member.

Associates

On 9 October, 2012, VTB Open Joint-Stock Company of Russia was admitted as an Associate.

On 31 December, 2012, Umicore AG & Co KG of Germany resigned as an Associate at the same time as Umicore SA/NV of Belgium applied for Associate status.

On 31 December, 2012, Nyrstar resigned as an Associate. The company continues to be listed on the Silver Good Delivery List.

These changes brought the membership to a total of 137 companies, comprising 73 Members (of which 11 are Market Makers) and 64 Associates.

GOOD DELIVERY LIST AND RULES

Somewhat surprisingly, given the large number of applications for accreditation that have been submitted during the past year or that are currently going through the technical assessment procedures, there were no announcements in the past quarter about new accreditations.

The revision to the Good Delivery Rules issued in September last year indicated that applicants for the Gold List were required to confirm their willingness to undergo the LBMA's Responsible Gold Guidance Programme. The Physical Committee subsequently agreed that applications can continue to be processed through the various technical assessment procedures but that the applicant will not be listed until it has also passed a Responsible Gold audit.

In mid-2012, a European silver refiner requested that the LBMA should consider lowering the weight range for Good Delivery silver bars, to facilitate compliance with manual handling regulations. A survey of GD silver refiners was undertaken to find out their views on this proposal. The great majority of responses indicated that there were no problems in terms of manual handling in continuing to produce and market these standard bars. The Physical Committee has confirmed that there will be no change in the recommended weight range shown in the Good Delivery Rules.

Until now, the Good Delivery Rules have stated that standard 400 troy ounce gold bars must be cast in open moulds. The Physical Committee has recently ruled that casting tunnel systems may be used for the production of Good Delivery gold bars.

It recently came to light that some assay marks on Good Delivery bars were not being made with uniform fonts, for instance, with the fourth digit being marked separately with a different punch. The Executive has informed all Good Delivery refiners that the punches used for marking essays must be uniform.

COMMITTEES

Management Committee

The Management Committee met in October when the main topics discussed included the LBMA's due diligence system. See the report on the Membership Committee below for more information.

Regulatory Affairs Committee

The RAC met in October to discuss a variety of regulatory issues. While the Committee continues to monitor the policy development of the LBMA Responsible Gold Guidance (see Regulation Update on page 26 for details), the Committee's work has now been able to refocus on other regulatory issues, such as other sections of Dodd-Frank, Basel III and MIFID. The RAC's main goal is to provide members with timely and relevant information about forthcoming regulatory developments that will have an impact on the bullion market. The Committee is therefore proposing to hold a Members' Regulatory Seminar on 28 February, 2013 at Merchant Taylor's Hall. If you have any topic suggestions or requests, please contact the Executive.

Physical Committee

During its three meetings in the final quarter of 2012, the Committee's discussions focused on weighing as well as some changes to the Good Delivery Rules (as described above). In October, following a test of its weighing ability, Malca-Amit was admitted to the list of Approved Weighers. The Committee is also developing a general specification for electronic gold scales. A more formal procedure for assessing applicants for approved weigher status is also under development. Looking ahead, the Committee expects to publish new rules on the acceptable range of undercuts in Good Delivery bars. It is expected that after taking advice from the Referees Committee, the amended rules will be published in the first half of 2013.

Public Affairs Committee

The Committee's work in the final quarter of 2012 was dominated by two major events – the Hong Kong Conference and the 25th Anniversary Dinner, which are covered separately in this edition of the *Alchemist*. Attention is now turning to the development of the programme for the conference in Rome starting on 29 September, 2013, and the selection of the venue for the 2014 event.

Membership Committee

In addition to vetting applications for membership, the work of the Committee in its recent meetings has been focused on the general question of due diligence in relation to both membership and GDL accreditation applications. The Committee has suggested that refiners wishing to join the Association should first achieve GD accreditation before applying to become an Associate. Another recommendation which has now been put into practice was the setting up of a working party on due diligence with members drawn from the Membership, Physical and Regulatory Affairs Committees to look at these issues. The Editorial on page 32 from Michael Ludwig, who chairs both the Membership Committee and the new Due Diligence Working Party, provides more information.

Finance Committee

The Committee met in November to review the three-year forecast and the budget for 2013. It also approved the budgets for the Silver Anniversary Dinner in December and for the Assaying and Refining Seminar due to be held in March 2013.

Assaying and Refining Seminar

The LBMA's fifth Assaying and Refining Seminar will be held in the Guoman Hotel in London from 10 to 12 March 2013. The topics to be covered will include assaying, weighing, casting defects, reference materials and proficiency testing for gold assayers.

Online registration via the LBMA website is now open. Details are shown on page 24.

GDL Commercialisation

The LBMA is delighted to announce that New York Mercantile Exchange Inc has become licensed to use the LBMA Good Delivery List as part of its own accreditation arrangements. The LBMA is grateful for this expression of confidence in the value of the List and for their support of the LBMA's Good Delivery process.

Annual Party

The Annual Party for bullion staff employed by Members and Associates will be held on 28 February. The venue will be The Pacific Oriental. See the announcement on page 15.

Members Seminar

A seminar for members and friends of the market will be held on the afternoon of 28 February in the Merchant Taylors Hall in the City of London. The seminar will focus on the way the loco London market functions and the role of the

LBMA in it. In addition, a review of forthcoming regulatory challenges will be included. Details will shortly be available on the LBMA website.

Executive Meetings and Travel
In early October, the Chief Executive and the LBMA's Good Delivery Officer, Rebecca Adamson, visited the Royal Mint's plant in Llantrisant just west of Cardiff. The visit included a tour of the pressing department, which produces the circulating coinage for the UK and many other countries, as well as the precious metals department, where the commemorative silver medallion marking the 25^{th} anniversary of the founding of the LBMA was produced.

Prior to the conference in Hong Kong, the Chief Executive travelled to Japan for a meeting of the LBMA Referees Committee, which was held at, and combined with a visit to, Tanaka's Shonan plant in Hiratsuka. On the previous day, the members of the Committee visited the refinery and fabrication facilities of the Japan Mint in Osaka.

In late November, the Chief Executive visited Pforzheim at the invitation of Allgemeine for a plant visit, which focused on the company's production facilities for continuously cast Good Delivery silver bars. This was followed by a visit to KGHM's precious metals refinery in Glogow in south-west Poland – one of the world's largest producers of refined silver.

In early December, the Chief Executive spoke at the Russian Bullion Seminar in Moscow and also had talks with the Russian Ministry of Finance about the implementation of the LBMA's Responsible Gold Guidance.

Committee Vacancies
There is a vacancy on both the PAC and the RAC.

Anyone from a Member company interested in applying for these roles should send an email to the Chief Executive with a brief summary of their bullion market experience.

IPMI 37^{th} Conference

June 22-25, 2013
JW Marriott Desert Ridge
in Phoenix, Arizona

Technical Abstracts for papers proposed for the IPMI 37th Conference are now being solicited. Please email your abstracts by January 31, 2013 to **mail@ipmi.org.**

Suggested General Topics
- Precious Metals Economics
- Precious Metals Mining
- Precious Metals in Environmental Applications
- Fuel Cells
- Government Regulations
- New Business Practices
- New Technologies
- Risk Management
- Sampling and Analysis
- Alloys
- Catalysts (all types)
- Pharmaceuticals
- Electronics

Market Moves

John Humphrey joins Dillon Gage
John Humphrey joined Texas-based Dillon Gage on 15^{th} October 2012 to start a new division, Digital Metals, which will focus on building advanced platforms for the company's physical metals trading, storage, fulfillment and eCommerce clients and partners. Prior to Dillon Gage, John led a national information technology consultancy in the U.S.

Remaining Duly Diligent

Editorial comment by By Michael Ludwig, Physical Commodities Operations Manager, Standard Chartered Bank

Michael Ludwig describes the LBMA's present system of due diligence and the steps that the recently established Due Diligence Working Party are taking to tighten up the procedures in the future.

Due diligence is practised by participants in the precious metals market in order to prevent or minimise exposure to credit risk, especially when dealing on a principal to principal basis in the over-the-counter market. In addition, the need to protect the precious metals market from misuse by criminals has been well recognised since time immemorial. In the distant past, the main risks faced by honest traders were related to counterfeit products - exemplified by Sir Isaac Newton's battle with coin counterfeiters when he was master of the Royal Mint. Nowadays, however, the particular attraction of precious metals, as far as criminals are concerned, lies in their high value combined with the fact that the metal's form can be changed (e.g., by re-melting) without affecting the value of the underlying metal. Carousel type VAT frauds have in the past used gold and other precious commodities but thanks to the co-operation between the LBMA and the VAT authorities, the fraudsters have tended to move on to other products. Nevertheless, the possible use of gold in particular to facilitate money laundering or terrorist financing means that legitimate operators need to exercise constant vigilance. There is nothing new in all this. The approach has traditionally been based on due diligence often referred to as "know-your-customer" or KYC though increasingly it has become KYCC (... your customer's customer).

> *"Carousel type VAT frauds have in the past used gold and other precious commodities but thanks to the co-operation between the LBMA and the VAT authorities, the fraudsters have tended to move on to other products."*

Something that has changed in recent years is the increased focus by the authorities on particular aspects of these issues. To some extent this was prompted by the financial crisis. The subsequent multiplicity of initiatives are intended to ensure that there will be no repeat of that disaster in the future. The market is having to cope, at great cost, with adapting to the raft (or is it a wave?) of regulations being produced in the wake of the Dodd-Frank Act and similar measures emanating from the EU. Lawyers, consultants and compliance officers have rarely been in such high demand! Helping our members in this area was the main reason for the setting up of our Regulatory Affairs Committee in early 2011.

Inadvertently assisting money-launderers, particularly related to narcotics funds, remains a significant risk. But a new risk factor has emerged in recent years due to the imposition of sanctions, essentially for political reasons, either by the United Nations or individual countries.

The LBMA's approach to protecting the bullion market from reputational risk needs to cover, on the one hand, Members (and Associates) and on the other, accredited refiners on the Good Delivery List. The LBMA has traditionally relied on the due diligence of existing members when admitting new members or associates. The requirements for sponsoring an applicant for membership have become more stringent in terms of the amount of information that a sponsor must supply. In the case of associates, they are required to obtain confirmation of continuing support from three sponsors on a rolling three-year basis. The situation with Good Delivery refiners is quite different. The LBMA Executive itself carries out a significant part of the due diligence required. An applicant for listing must provide full information about the company's history, ownership, directors as well as general information about its sources of supply and customers. It must also provide its latest financial figures and details of its production of precious metals. Under the proactive monitoring system, refiners must provide an update on this information annually and must also submit to a technical testing procedure every three years. More recently, gold refiners are required to comply with the LBMA's Responsible Gold Guidance which covers conflict gold, money laundering and terrorist financing. With regard to sponsorship, originally applicants for listing needed to get a letter of support from their central bank but increasingly, central banks are unwilling in principle to provide such letters of support so in recent years it has generally been acceptable for a well-known commercial bank to be acceptable as a sponsor. Needless to say, the Physical Committee, which contains representatives from all six clearing banks within the London bullion market, must also be satisfied that an applicant has satisfied the required due diligence before it can proceed to the technical assessment stage of the application procedure.

During the past year or so discussions have taken place within the LBMA's main committees about whether there is a need to improve or change the system of due diligence, especially as it relates to applicants for Good Delivery accreditation. Finally, it was agreed to set up a temporary working group - known as the Due Diligence Working Party - to consider the whole complex of issues and to report back to the Management Committee.

In brief, the terms of reference of the new working party are :

- To examine the sections of the LBMA Constitution and to recommend any changes that may be thought necessary;
- To consider the present system of due diligence on Good Delivery applicants and to recommend whether any changes are required;
- To consider the present system of due diligence on Members and Associates and to recommend whether any changes are required. Specifically, the Working Party would examine the possibility of instituting Member Reviews along similar lines to the existing Associate Reviews;
- To discuss whether the LBMA needs a permanent compliance committee.

The new working party held its first meeting in late November (which concentrated on the Good Delivery questions described above). The Working Party will not prepare its final report until it has held two further meetings but it has already reached some tentative conclusions. Generally, it felt that applicants for Good Delivery accreditation should be required to obtain sponsorship from suitably qualified existing members or associates. In the past, it may have been more difficult for some refiners to obtain such support, for instance, if they were operating in a country where the LBMA was not represented by any members. However, with the expansion of the LBMA's membership into countries such as Russia and China, it may now be possible to insist that refiners should secure letters of support from existing Members (or Associates).

The Working Party will hold its next meeting shortly and would welcome feedback from companies within the membership and from Good Delivery refiners.

Michael Ludwig, Physical Commodoties Operations Manager, Standard Chartered bank.
Between 2000 and 2006 Micheal was the Physical Precious Metals Shipment Manager at Commerzbank Int. S.A., Luxembourg. In 2006 he left Commerzbank to become the Business Manager responsible for Precious Metals at BNP Paribas, London. In December 2010 he then joined Standard Chartered Bank, London, to take up his current role as the Physical Commodities Operations Manager. Michael is chairman of both the LBMA Membership Committee and the LBMA Due Diligence Working Party.

facing facts

Cameron Alexander,
Senior Analyst, Precious Metals,
Thomson Reuters GFMS.

Vietnam's Decree 24 - Will it work to reduce consumer appetite for gold?

The Vietnamese gold market has been in a state of flux for several years, with uncertainty surrounding gold ownership leading to strong demand for the yellow metal as a safe-haven asset. Taking a step back, gold ownership per capita in the country is one of the highest globally and has historically played an important role in wealth creation, as an accepted payment option as well as a simple store of family savings. According to Thomson Reuters GFMS, Vietnam is estimated to have consumed 66 tonnes of gold investment products (primarily 10 tael bars) last year.

In May 2012, the government of Vietnam introduced new legislation (Decree No.24) concerning the management of gold-trading activities, which essentially placed production, import and export of gold, and trading of gold bars/bullion in the hands of state-appointed organisations. The Decree also set out several conditions that organisations and individuals must satisfy in order to obtain a permit from the State Bank of Vietnam. Accordingly, they must be able to demonstrate capital of at least VND100 billion (approximately US$5 million), with operational experience in the field of purchasing and selling gold for more than two years.

In a nutshell, this government initiative is designed to encourage consumers to invest in the domestic currency rather than in gold or the dollar, which has been the foremost choice for much of the population. The planned changes will significantly reduce the amount of retailers permitted to sell gold bars, from an estimated 12,000 outlets across the country to below 2,000 once the new regulations are introduced. Most small family-run operations will be unable to meet the strict government requirements. Any company not licensed by the central bank must have exited the gold bar business by 10 January 2013, and a crackdown on non-compliance seems likely.

So will these measures dampen gold demand in Vietnam? Recent field research suggests it is already having a telling impact, with demand in the second half of 2012 slumping over 45% on a yearly comparison, while local premiums have risen to substantial levels over this period. Access to gold investment products will certainly be eroded further in 2013 as retailers are forced to stop trading investment bars, limiting access to consumers, especially in agricultural regions of the country. While gold bar sales may be constrained, demand for gold products has not dissipated completely. Borne out of these restrictions, demand for 24-carat jewellery (chiefly rings) has picked up as a means of investing in gold, with traders selling plastic-coated (sealed) rings in varying sizes as a quasi investment vehicle to meet consumer demand. However, it is unlikely that even healthy growth in this segment will come close to offsetting the decline in gold bar sales across the country that has already begun.

In previous years, a portion of demand in Vietnam was satisfied by unofficial imports as official trade had been strictly controlled. This material was sold domestically and then stamped into tael bars by one of 13 companies permitted to do so. This practice allowed significant volumes of gold to enter the market. The newly introduced Decree No.24 designates a single state-run company to control all gold bar production, with all other brands to be outlawed across the country. This has significantly reduced the cross-border trade and has also contributed to the sharp fall in investment demand. Time will tell if consumers can manipulate the system and find a way to invest in gold by other means, though for now at least, this opportunity would appear to have largely been closed.

Cameron Alexander, Senior Analyst, Precious Metals, Thomson Reuters GFMS.
Based out of Perth, Australia, Cameron is responsible for research coverage of South-east Asia, Australasia and the Gulf States in the Middle East, involving substantial research travel to these territories. Prior to his joining GFMS in December 2005, Cameron worked for over seven years with the precious metals refiner AGR Matthey.

The Alchemist is published quarterly by the LBMA.
For further information please contact Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

VERISCAN

BULLION IDENTIFICATION SECURITY SYSTEM

The Fingerprint of the Future

Finally, bullion arrives in the digital age…

PAMP, the renowned industry innovator, once again transforms the world of precious metals by introducing the latest in Laser Surface Authentication technology: VeriScan™.

With a uniquely individual and imperceptibly present 'surface signature' that is up to four-times more distinctive than a human fingerprint, each PAMP bar is designed to enhance authenticity while offering you a world of possibilities to identify and manage your transactions of PAMP bullion.

Progressive worldwide rollout begins early 2013.

PAMP

Produits Artistiques Métaux Précieux

TRUST IS PRECIOUS

The Art of Precious Metal Transformation®

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

LBMA

Alchemist

The London Bullion Market Association ISSUE 70 April 2013

In this issue

The highlight of this edition is the recent visit of the Queen and Duke of Edinburgh to the gold vaults at the Bank of England. Read all about their visit on page 3.

Rand Refinery is the world's largest single site gold refining and smelting complex. Our diverse range of industry leading services includes smelting, refining and fabrication. With an extensive global network, Rand Refinery offers world-class state of the art logistics services for the transport of precious metals via land, sea and air. As the only LBMA referee in the southern hemisphere, we are able to deliver ethical, responsible and cost-effective solutions to a growing list of global clients. So whatever your gold related business needs are, you can rest assured that we have the experience and expertise required to turn your vision into reality.

RAND REFINERY
STRIVING FOR PERFECTION

Rand Refinery (Pty) Ltd, Refinery Road, Industries West, Germiston, 1401 | P.O. Box 565, Germiston, 1400, South Africa
Tel: +27 (0)11 418 9000 | Fax: +27 (0)11 418 9231 | Email: gold@gold.co.za | www.randrefinery.com

A Royal Visit to Remember

By Louise Lee, Manager of Gold and Foreign Exchange Settlement Operations, The Bank of England

The Queen and the Duke of Edinburgh visited the Bank of England in December 2012. In the following article, Louise Lee provides a fascinating insight into their visit.

The Queen is escorted through the Bank's display vault.
Image used with permission from The Governor and Company of the Bank of England.

On a still mid December morning, underneath Threadneedle Street, the Bank of England's vault was buzzing with an air of excitement. Moments later, the doors of the vault swept open to reveal the morning's much anticipated visitors; the Queen and Duke of Edinburgh had arrived. The Queen was in front escorted by our Head of Division. As they walked slowly towards us, it was the perfect opportunity for the waiting photographers. As their flashes fired, the aisle glistened in a spectacle of aureate brilliance - a suitably magnificent scene for the guests whose arrival it marked.

Several weeks earlier, a small group of staff had been told of the planned royal visit and had set about making the arrangements for our 'special guests'. It was at our first meeting with the Governor's Private Secretary that we had discussed ideas for the itinerary. Having never been involved in an event of such prestige, the thought of the meticulous planning ahead seemed quite a daunting task.

With an outline plan ready, the next step was a 'walk through' with representatives from the Palace. They provided a valuable insight into how to structure the 'meet and greet' sessions; they told us that a "horseshoe" of eight to 10 staff works best. With our timing, route and high-level plan agreed, we now had to work up our detailed plan. The Royal Party were to spend around 15 minutes in the vault. There was much work to do but, the details of our 'special guests' were to remain confidential for the time being. That was tough!

The Royal Visit took place in our display vault. This is the vault used in the Bank's official photographs and is the image the general public are familiar with from archive footage. It is distinctive. In a nod to its history, historic posters from cruise ships line the walls, leaving the vault with the charm of a bygone era. These posters appear in a 1942 photograph of the vault and were professionally preserved and framed to preserve them for posterity around 10 years ago.

With the setting decided the next task was to choose the lucky staff who would be introduced to the Queen and Duke. We decided upon on a mix of staff from our physical vault operations and back office settlements team. They were delighted that we had chosen them and fully appreciated that this would be a day to remember.

> *"As the Royal Party approach the vault, our two 'key-holders' step forward. They open the grille in a sweeping movement of such majesty befitting of only such guests and the occasion."*

Back to the big day and the moment has arrived. Our staff wait patiently in the vault as the Royal Party arrives in the Bank and the visit gets underway. The anticipation is building. As the Royal Party approach the vault, our two 'key-holders' step forward. They open the grille in a sweeping movement of such majesty befitting of only such guests and the occasion. They stand either side of the door in a ceremonial stance as the Royal Couple enter with their escorting party including the Governor.

The Bank's display vault. It holds approximately 63,000 bars currently worth nearly £26 billion.
Image used with permission from The Governor and Company of the Bank of England.

The Queen and the Duke of Edinburgh closely examine a selection of gold bars.
Image used with permission from The Governor and Company of the Bank of England.

As our Head of Division escorts the Queen down the aisle, he explains that there are around 63,000 bars of gold in this vault alone. Of interest, he notes how each stack of gold they pass holds four tonnes, which, coincidently, is the same weight as the Gold State Coach! This catches the Queen's interest and she pauses briefly to clarify the point.

> *"Each stack of gold they pass holds four tonnes, which, coincidently, is the same weight as the Gold State Coach!"*

They walk towards us and I greet the Queen and Duke and introduce the team. Our Vault Operations Supervisor explains how he and his team of staff are responsible for checking and weighing each gold bar delivered into the Bank and for storing them within the vaults. I then introduce members of our settlements team who explain their role of maintaining the records of who owns each bar and settling daily transfers between our customers when they buy and sell gold with each other.

We guide the Royal Couple to our first display table and begin to tell our guests about the gold bars laid out before them. Everyone appears captivated by the presentation and quiet descends around the vault. Our Royal Guests are genuinely interested and ask many questions. Perhaps not surprisingly the Duke is eager to hold a bar, remarking upon its considerable weight.

> *"Our Royal Guests are genuinely interested and ask many questions. Perhaps not surprisingly the Duke is eager to hold a bar, remarking upon its considerable weight."*

The Royal Couple move towards our display of historical interest bars and I recount the story behind each. First is our most historically significant bar. In April 1942, HMS Edinburgh left Murmansk carrying gold, which formed part of Stalin's payment for the supplies that the Allies were shipping to Russia. Tragically, a German torpedo hit and she sank in the Barents Sea shortly after departing Murmansk. This bar was recovered in 1981 and while other bars were also recovered, it is not known how many of these still exist in their original form.

Our second bar of historical interest is the 'Bombay Harbour bar'. In 1944, Steam Ship Fort Stikine sailed from Birkenhead en route to Bombay carrying what transpired to be a volatile cargo of explosives, raw cotton, timber, scrap metal, oil and gold bars. Whilst docked in Bombay Harbour, a fire took hold and the ship exploded. This bar was recovered in 1974 and blast damage from the explosion is evident on the bar.

And so our time with our Royal Guests has come to an end. We watch as they are ushered out of the vault and onto the next part of the Bank. For us, this has been a career highlight and an experience we will never forget.

The Queen examines gold bars of historical interest.
Image used with permission from The Governor and Company of the Bank of England.

Louise Lee, Manager of Gold and Foreign Exchange Settlement Operations, Bank of England.
Louise has worked for the Bank for 25 years and has held a number of roles throughout her career. She currently manages the Bank's Gold and Foreign Exchange Settlement operations and sits on the LBMA Physical Committee as an observer for the Bank.

Because you need precious metals solutions, we offer trusted global insight and expertise

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery service through our partnership with and equity participation in Argor-Heraeus
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 207 444 9075
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

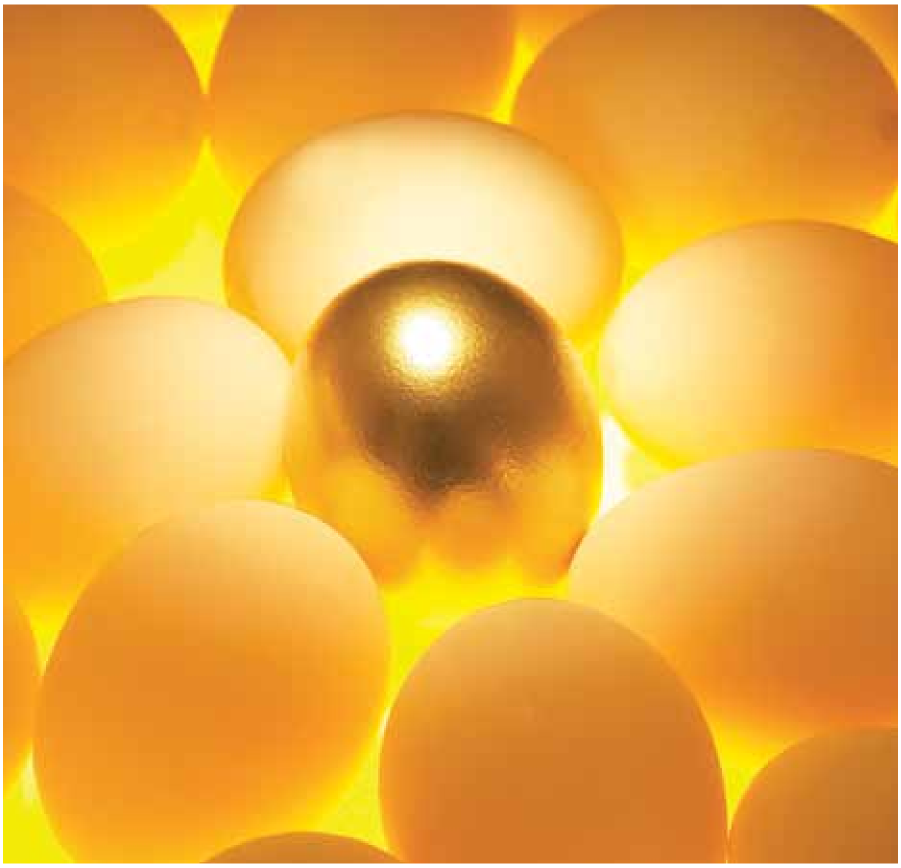
This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request. Copyright © Commerzbank AG 2013.

COMMERZBANK

The bank at your side

Fear, Delusion and the Gold Investor Index

by Adrian Ash, Head of Research and Ben Traynor, Economist, BullionVault



In this article, Adrian Ash and Ben Traynor explain how they have devised an Index to measure Western household sentiment towards physical gold. People buy gold for many reasons. But in the Western imagination, buying gold spells 'fear' like little else.

"Fear, Mr. Bond, takes gold out of circulation and hoards it against the evil day," a Bank of England officer briefs 007 in Ian Fleming's *Goldfinger* of 1959. Two decades later, "We're in World War Eight if you believe the market," the press quoted one Comex trader as gold hit its 1980 high. With the next upturn in prices, "Popular delusion [still] says gold remains the best hedge against Armageddon," smirked the *New Yorker* magazine in 2004. But Armageddon began three years later, and come the US downgrade, euro crisis and English riots of mid-2011, "Gold is a mirror," wrote a Californian finance professor. "Its price gauges fear of uncertainty, fear of losses and fear of poverty."

The figure of the private investor – the dreaded *goldbug* – looms large in this popular conception. Yes, this character is also greedy (even with his nuclear bomb and S.M.E.R.S.H. connections, Auric Goldfinger attacks the US gold reserves at Fort Knox to become "the richest man in the world, the richest man in history!"). But lacking panicked queues outside bank branches during the virtual run of 2008, the media found anxious queues outside coin shops to be a useful replacement. When *The Economist* magazine first addressed gold's bull market in 2009, it pointed to the fictional Harry 'Rabbit' Angstrom, anxiously hoarding gold Krugerrands in John Updike's *Rabbit Is Rich*. And in mid-2011, one British reporter declared to us that the decade-long rally in gold prices was in fact entirely due to Tea Party supporters, glued to Fox News and fearing the imminent collapse of society.

Given such cultural touchstones, retail gold investors would seem central to the zeitgeist of the West's continuing financial crisis. Anecdote, however, has had to suffice to date. Because while private individuals are perhaps overrepresented in the popular view of gold investing (not to say misrepresented), they are little examined in the data.

> *"Given such cultural touchstones, retail gold investors would seem central to the zeitgeist of the West's continuing financial crisis."*

Gold analysts can monitor a number of indicators to give them a feel for prevailing sentiment in the market. The weekly Commitment of Traders report from the Commodity Futures Trading Commission (CFTC), for example, gives a snapshot of gold futures' positioning among money managers, as well as the 'non-reportable' positions of private speculators. The CFTC data only refer to leveraged trading, however, and the net long position of the 'doctors and dentists' (who risk getting filled and drilled) clearly reflects the availability of brokers' credit more than sentiment towards physical gold bullion. Flows into and out of exchange-traded gold trust funds (ETFs) also give clues as to how bullish or bearish the market as a whole may be. But whilst not the proxy, perhaps, for the wholesale over-the-counter positioning that some analysts have claimed, a feature of ETF tonnages is that they give little weight to grassroots investors, whose size and activity is swamped by much bigger players.

As a result, financial journalists will often cite sales of American Eagle bullion coins as a guide to retail investment demand. This brings other drawbacks, however, as US Mint sales data are very lumpy, measuring sales to retail distributors rather than end consumers, and also displaying a high degree of seasonality when the new date is issued each January. Moreover, such sales figures can only measure retail activity on the buy side; they do not capture any reselling of coins by the public. A similar problem affects the World Gold Council's authoritative *Gold Demand Trends*. This quarterly report, based on industry data gathered by Thomson Reuters GFMS, necessarily suffers a time delay. Western household investment is elusive again, both at the country level (offshore holdings can't be clearly identified) and because much of the reported flow is mediated through retail distributors. Nor can retailers measure the true

depth of coin and small-bar reselling on the secondary market. Tracking sales on eBay may be helpful, but volumes remain small and the pattern unclear. Yet gauging two-way activity is surely vital if we are to approach a clearer picture of household behaviour – and thus sentiment – towards physical gold investment.

> *“We have some fund and charity clients, we are a consumer-facing business online, so the index is entirely separate from institutional or central bank flows.”*

To augment the existing data sources, BullionVault launched its Gold Investor Index last October. First, we wished to provide, via a monthly data point, a window onto Western household sentiment towards gold, specifically across the US, UK and Eurozone, the currency areas where the vast majority of BullionVault users – some 89% – reside. Although we have some fund and charity clients, we are a consumer-facing business online, so the index is entirely separate from institutional or central bank flows. Entering and managing their own trades as they choose, our users are also self-directed, heightening our data's sensitivity to customer sentiment. Indeed, the creation of our index was prompted by our colleagues and contacts in the professional wholesale market asking what action we were seeing on our peer-to-peer retail trading exchange online. A further motivator was the fact that the proverbial 'hard-working saver' – as well as non-specialist journalists and other observers using consumer behaviour to illustrate their opinions – tends to have little interest in gold absent moments of extreme economic tension. So the Gold Investor Index, by seeking to reflect retail investor attitudes towards physical bullion, might also be viewed as an indicator of wider economic and financial sentiment.

What does the Gold Investor Index show?

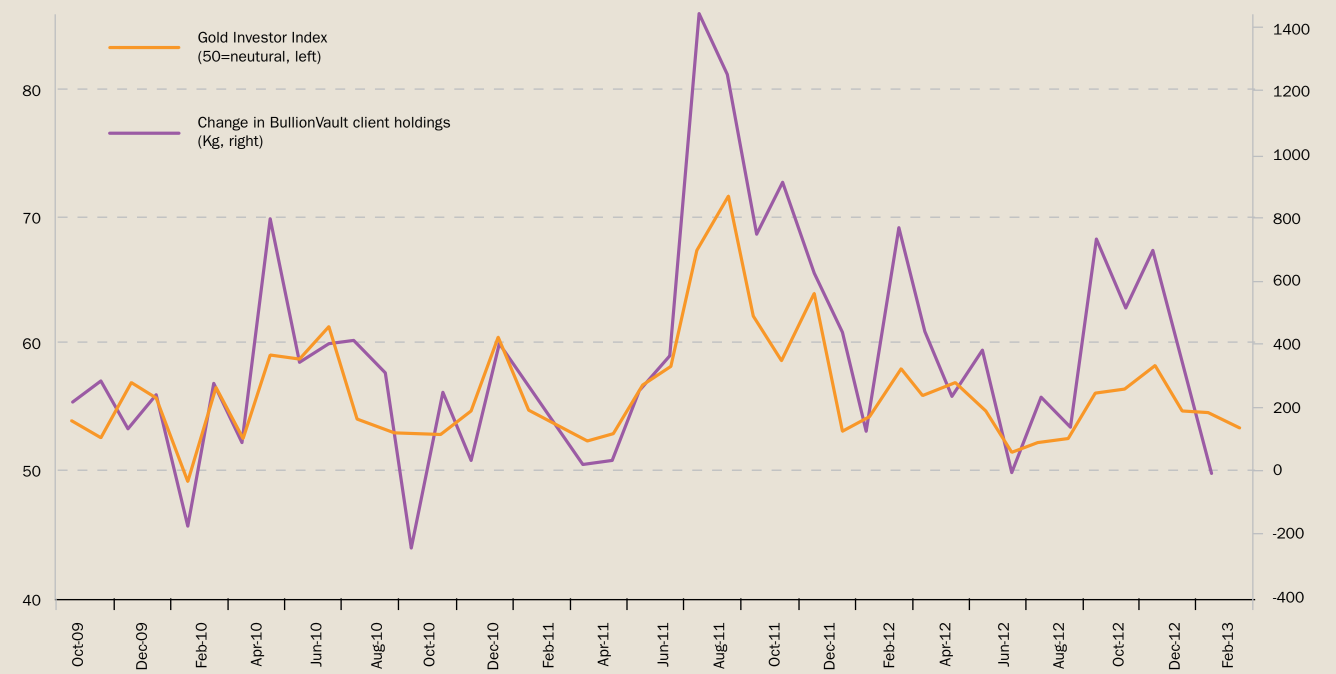
BullionVault users buy and sell gold held in Good Delivery bars, trading as little as 1 gram at a time in their choice of London, New York, Zurich and now Singapore storage. The index takes the number of net buyers, meaning those users who added to their gold holdings over the last month, and subtracts the number of net sellers. That figure – the balance of net buyers over net sellers – is then measured as a percentage of everyone who already owned gold at the start of the month. (First-time customers therefore push the index higher, as they only show in the numerator.) Finally, this number is added to 50.0, which is the index level signaling no change – a perfect balance of buyers and sellers, with sentiment amongst self-directed private investors neutral overall.

Note that, whilst closely aligned historically, the index does not track the weight of net client demand (see Figure 1). The Gold Investor Index gauges the number of people whose gold position rose or fell during the month, rather than the quantities of metal traded. Each individual actor is given an equal weighting – one user, one vote – so that the sentiment of larger customers does not distort the picture. Nor would a reading of 50.0 mean that users bought the same amount of gold on aggregate as they sold. BullionVault itself enables the quantity of client property to 'breathe' in line with net demand, carrying and restocking its own trading float directly from wholesale market counterparties, and then acting as a market maker on its exchange by quoting firm prices. But even though our account is excluded from the index's calculation, it would only carry one vote if it weren't.

> *“The Gold Investor Index gauges the number of people whose gold position rose or fell during the month, rather than the quantities of metal traded.”*

Using the methodology outlined above, BullionVault has calculated the Gold Investor Index going back to October 2009. Although we have trading data from much earlier, we disregard these because: a) BullionVault was not then the largest provider of vaulted gold ownership online; b) the pool of investors using BullionVault was much smaller, again making it less representative of broader retail sentiment; and c) index values were much less stable but consistently high, as even small net additions to the user base added rapidly to the number of net buyers. Today, in contrast, BullionVault has been used by more than 46,000 people worldwide, and their privately owned gold property totals 33 tonnes. That weight represents some 0.4% of global net retail demand since the business was launched

Figure 1: Decisions vs Weight



Source: BullionVault

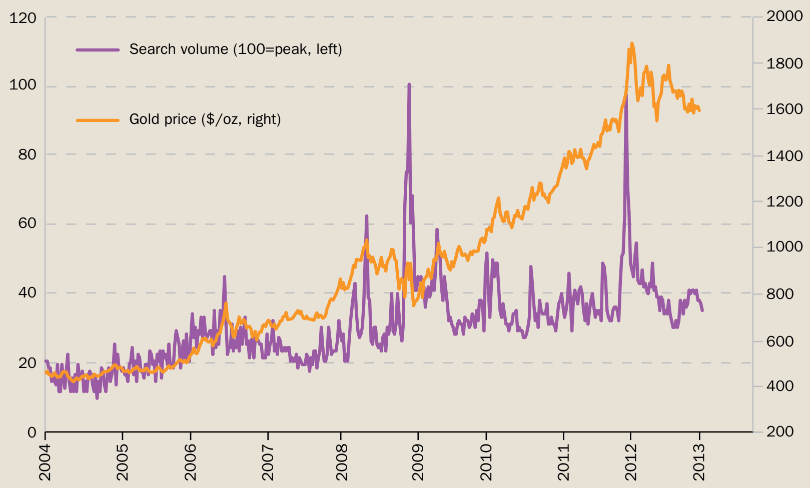
a decade ago and gives a greater sample size than most other consumer surveys achieve. It is also critical to remember that the index is based on actual decisions to buy or sell. It shows revealed preference, rather than would-be intentions – something that isn't provided by, say, tracking Google searches for 'buy gold' *(Figure 2)*.

So what does the Gold Investor Index say about grassroots sentiment towards physical gold in the West?

The index isn't meant to supersede the existing data, but to complement these, focusing solely on private individuals and their actions. To date, commentators using our data have noted the preponderance of buyers over sellers every month since early 2010, but at levels far below the peak of late summer 2011. Referring to other data points in the market – which, again, the index is not meant to supersede but to complement – others have noted how private sentiment continued to rise even as exchange-traded funds and especially speculative longs in futures contracts were reduced. The reverse has also been true. Because as ETF gold holdings jumped to record highs in late 2012 (see Figure 3), and speculative positions in Comex futures neared 2011 levels, self-directed private households were not participating at anything like the same pace as the weight accruing in those vehicles might have suggested.

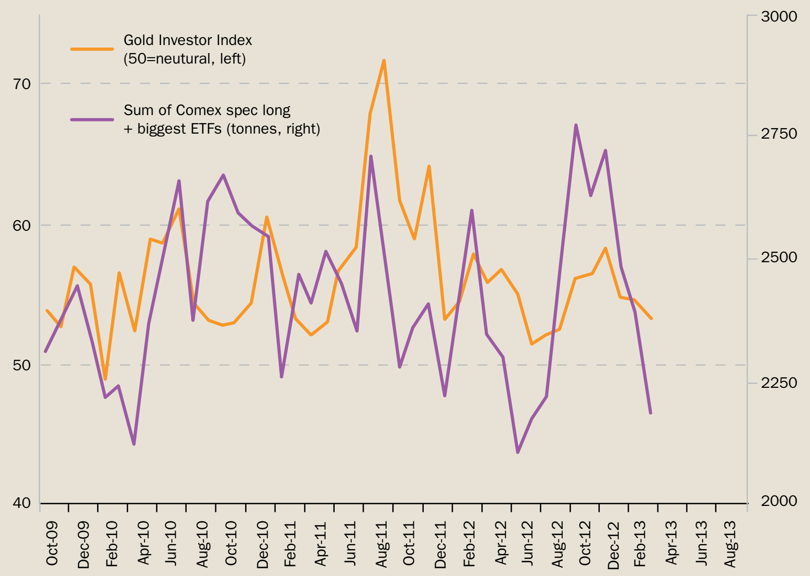
More recently, however, the distinctly bearish turn in speculative short positions on Comex, as well as the slashing of bank analysts' price forecasts, has been reflected only moderately by private investor sentiment. With the speculative net long in Comex gold futures and options cut in half between November and March, the Gold Investor Index has yet to slip below 50. It turned lower in January, but sentiment has remained positive if subdued. The largest gold ETFs in contrast have shed more than 120 tonnes of gold between them, some 7% from their recent all-time records. Analysts may now look for the index to fall further perhaps if retail behaviour plays catch up with the retreat in so-called 'safe haven' demand amongst professional players. But it is no delusion that buying gold has continued to gain in popularity since the peak of the financial crisis to date. And whatever the fearful and greedy goldbug of popular imagination chooses to do from here, the Gold Investor Index gives voice to the real-world decisions of private individuals.

Figure 2: Searches for "Buy Gold" (worldwide, in English)



Source: Google Trends, St.Louis Fed

Figure 3: Private vs Professional Gold



Source: BullionVault, CFTC, GLD, IAU, ETF Securities

Adrian Ash, Head of Research, BullionVault.
Adrian Ash has been Head of Research at BullionVault since 2006. Formerly Editorial Chief at the UK's largest publisher of private-investor advice, and also City Correspondent for the popular Daily Reckoning email, Adrian is now frequently quoted by leading news outlets worldwide.

Ben Traynor, Economist, Bullion, Vault.
Ben Traynor is Economist at BullionVault and also Editor of its Gold News website. Ben read Economics at St Catharine's College, Cambridge and is currently studying for an MSc in Financial Economics at Birkbeck College, London.

MALCA-AMIT

SPECIALISTS IN SECURE LOGISTICS AND VAULTING, LBMA APPROVED WEIGHERS, VAULT NETWORKS IN LONDON, NEW YORK, SINGAPORE, HONG KONG, ZURICH AND GROWING... SO GROW WITH US...

For information or enquiries please contact
info.bullion@malca-amit.com
or call our UK office on +44 2088149850
www.malcaamit.com

MALCA-AMIT
DELIVERING ABSOLUTE
PEACE OF MIND

The Indian Gold Jewellery Market

Aelred Connelly, Public Relations Officer, LBMA, interviews Shekhar Bhandari, Head of Precious Metals, Kotak Mahindra Bank

With the Indian wedding season now underway, Aelred Connelly interviews Shekhar Bhandari and asks him about the significance of gold jewellery to Indian culture.

Has the 50% increase [from 4% to 6%] in the customs duty on gold imports, which was introduced on 21 January this year, had a detrimental effect on demand for gold jewellery in India? As a result of significant increases in the price of gold, customs duty as a percentage of the value of the gold has fallen considerably in recent years. It was 9.4% in 1998-99, but was as low as 1.3% by December 2011. The government increased the customs duty to 6% earlier this year in order to increase revenue without encouraging parallel trade. I don't think the rate of customs duty at 6% affects jewellery demand. Demand for jewellery constitutes 65% of India's gold imports, and demand for jewellery is inelastic as it is mainly determined by the number of marriages and births, as well as the monsoon season.

Interestingly, the increase in duty resulted in increased landing costs, but there was a correction in the price, which resulted in the purchase price of gold being 4% cheaper.

An Indian bride wearing traditional gold jewellery.

Could you provide an explanation of the importance of the wedding season in India? Gold usage started in early Indian civilisation. Indian gold values have been built over 4,000 years and it takes a minimum of 20 to 30 years for a marginal (or small) shift in behaviour. In India, women are the biggest owners of gold, not because they love it, but because the men in the family have given it to them as a form of social security. Gold is regarded as auspicious and as a connotation for wealth, prosperity, social security, safety and liquidity.

In the short term, there are three main factors that determine demand for gold in India: the monsoon season, the number of weddings and the number of births.

Could you explain the concept of stridhan (woman's wealth) and inheritance, and how this affects the giving of gold to daughters? As I mentioned earlier, women are the biggest owners of gold. With no formal social security system in India, gold is regarded as a valued and highly liquid form of wealth. Stridhan is a traditional practice that was primarily meant to provide women with some level of economic security in adverse situations such as divorce, widowhood, etc.

> *"Indian gold values have been built over 4,000 years and it takes a minimum of 20 to 30 years for a marginal (or small) shift in behaviour."*

Among Hindus, it is interpreted in various ways. In general, stridhan is defined as that portion of a woman's wealth over which she alone has the power to sell, gift, mortgage, lease or exchange – as a whole or in part. Usually, stridhan is passed from mother to daughter, unless the woman decides otherwise. Any dues from her can also be recovered from her stridhan.

At the LBMA conference in Hong Kong last November, you mentioned in your very interesting speech that this would be a record year for auspicious days in India. Could you explain your reasons for saying this? India follows a lunar calendar and on those (auspicious) days, no weddings take place. Weddings in India are considered to be the 'longest' relationship – even beyond one's life – and are so valued that they can only be conducted on auspicious days. Hindu weddings do not take place for a four-month period known as *Chaturmas*. Throughout this period, Lord Vishnu, and his fellow Gods and Goddesses, are believed to be in Yogi Sleep, and Hindu weddings are not held during this period so that the Gods are not disturbed. Only 117 days will be lost in 2013 compared to the 148 days that were lost in 2012. The upshot of this is that there are expected to be 23% more wedding days in 2013 compared to 2012.

India is the world's largest consumer of gold. What is your outlook for demand for gold, particularly jewellery, in 2013? It is estimated that India 'invested' $166 billion in the 10 years between 2002 and 2012, buying a total of 6,300 tons of gold, which has now doubled in value to $335 billion. This estimate is arrived at by netting off India's gold imports and exports. A quarter of the gold demand in India is now accounted for by investment, which is a significant increase since liberalisation.

Jewellery demand accounts for 65% of total gold demand and is dependent on three main factors: the number of marriages, the monsoon

> *“It is estimated that India ‘invested’ $166 billion in the 10 years between 2002 and 2012, buying a total of 6,300 tons of gold, which has now doubled in value to $335 billion.”*

and harvest season, and government policy. Since conditions during 2013 are favourable for the first two [factors], I would expect that demand is likely to be strong. I would estimate that demand for jewellery will be 25% higher this year (compared to 2012).

With an estimated 10 million marriages taking place in India during the wedding season this year, how much on average will be spent on a typical wedding? How much gold would typically be bought for an Indian wedding? It is estimated that anything between $2,000 and $2 million would be spent on a typical wedding in India. Gold jewellery forms an important part of a wedding, and the amount of jewellery purchased in a typical wedding would range between 20 to 2,000 grams.

Do you sense a shift away from the traditional buying of gold for weddings and other festivals or envisage a shift in the future? In the 10 years from 1990-91 to 2001-02, the Indian price of gold increased by around 3%, while the London price of gold dipped by 2.5%. However, in the next five years from 2002-03 to 2006-07, the domestic prices of gold rose by 15.5%, while the London price increased by 18%. Further, in the subsequent five years from 2007-08 to December 2012, domestic gold prices increased by 22%, while the London price increased by 19.2%. This reflects a gradual dollarisation of the commodity markets as global central banks pumped liquidity in the global financial markets. Thus, demand for gold has picked up internationally and nationally as a hedge against inflation and as a safe-haven asset. The buying of gold for weddings is considered jewellery, whereas the buying of gold during festivals is regarded as an investment. If gold gives negative returns over the next 10 years, Indian investors would definitely move to a better alternative investment, only buying token gold on auspicious days. However, inelastic gold consumption such as jewellery (not investment) will remain unaffected.

Although the majority of gold in India is imported, most of the jewellery is fabricated within the country. Do you envisage any change in that situation in the future? Indian artisans are highly skilled and are considered to be among the very best in the world. I foresee India investing in the industry and reaping the rewards of this knowledge and skill.

Should gold in India be classified as a part of the capital account? And do you think that this would solve India’s current account deficit (CAD)? The system of National Accounts (SNA)9 3 requires trade in gold, other than official transactions between central banks, to be treated as imports and exports of goods. So, in India, for accounting purposes, gold is treated within the balance of payments.

For countries with an international market in gold (for example, the UK, Japan and Switzerland), there is little correspondence between the activities of traders on the bullion market, cross-border movements of gold and the concept of merchanting of a good. The reason that these countries do not classify gold as a trade account item is because they have large and vibrant international markets in gold, whereby gold may be brought to country A for safe custody without ever being owned by a resident of country A. In other words, this gold could remain in the vault/depository in country A despite a number of changes of ownership.

India would have to continue to classify gold under the current account, rather than in the capital account, as its gold imports are for use by residents. In this context, it could be pertinent to explore the potential of developing India as an international market for gold trading.

Mangal Sutra (Indian married woman’s necklace).

What does the future hold for demand for gold in India? India has a young population. By 2025, it is estimated that 88% of the population will be under 60 years old. This is an important demographic for the future, which is complemented by a good education system in India.

The average age of Indians is currently 29, and there are large number of the population aged between 30 and 59. India’s nominal GDP is estimated to increase from $3 trillion currently to more than $10 trillion by 2025. Gold is an automatic choice for many people in India, for the reasons stated earlier, so as wealth increases so will demand for gold.

For the longer term, developing India as an international hub of gold trading and transacting could be considered. This could pave the way for classification of non-monetary gold as a capital account entry, thereby avoiding the distortions in the current account figures.

Shekhar Bhandari is the Business Head for Forex, Derivatives and Precious Metals in the Treasury division of Kotak Mahindra Bank. Shekhar has been instrumental in increasing market share of Precious metals business by 3.5 times within 24 months.

He joined Kotak Mahindra group in 1996 after completing his Chartered Accountancy where he was ranked 25th in India. Since then he has held positions of increasing responsibility across various group companies – Kotak Mahindra Finance Ltd, Kotak Mahindra Asset Management Company and Kotak Mahindra Old Mutual Life Insurance. Amongst several achievements, He has led the entire formulation and turnaround project - “Turning Point” with McKinsey, and rolled out Change Management Process at branch, regional and national level in turn making Kotak Mahindra Old Mutual Life Insurance among the top three in Agent Productivity in the Industry. He also set up the entire Compliance and Secretarial function at Kotak Mahindra Old Mutual Life Insurance.

His areas of interests are Derivatives, Structuring, Precious Metals, Treasury, Economy, Risk Management, Distribution and Marketing of Financial Products and covers these subjects as a regular speaker at various forums.

He holds a Bachelor of Commerce with a further qualification of Associate member of the Institute of Chartered Accountants of India, Associate member of the Institute of Company Secretaries of India and Graduate member of the institute of Cost and Works Accountants of India.

Timothy Green and His Book Collection – An Appreciation

By Stewart Murray, Chief Executive, LBMA

Tim Green recently kindly donated his collection of books on gold and silver to the LBMA. These are now on display in the LBMA's Boardroom. Stewart Murray reflects on Tim's association with both the books and the bullion market, which stretches back nearly half a century.

I first met Tim Green shortly after joining Consolidated Gold Fields in 1984. My previous experience, and indeed the basis for my new job in the Commodities Department of CGF, was in copper. I had spent the previous decade working for the International Wrought Copper Council. In fact, my knowledge of the gold market was rudimentary at best. But I soon realised that the awe in which Tim was held in the company was very well justified. While I was only just beginning to learn about gold, Timothy Green had already been writing about it for almost 20 years. Many people in the gold market know Tim for the books and other publications that he has written on gold, silver and diamonds, but very few will be aware of how all this started.

While studying at Cambridge, he had been a stringer for *Time Life* (where incidentally he met his wife, Maureen). Some years later, he was persuaded to take on the position of editor of the august *Illustrated London News*. I remember Tim telling me that he had not been totally satisfied with this job because he was frustrated at having to send journalists to places where he wanted to go. After 12 months, he resigned to become a self-employed journalist. This was in May 1966. Almost immediately, he was commissioned to write a piece on gold for the US magazine, *Fortune,* which focused on the changes that were happening in the gold market. Previously, central banks had bought nearly all the gold that had been produced by the world's mines, but the private sector (both through investment and jewellery consumption) was beginning to become important. Tim's researches inspired him to write his first book, *The World of Gold*, which appeared in I968 (and was to be revised, updated and expanded several times in the next decade).

Someone else had also realised that things were afoot in the gold market. This was David Lloyd- Jacob, a Director of Consolidated Gold Fields (then the world's second-largest gold mining group after Anglo-American), who had written in 1967 what was in effect the first CGF Gold Survey. David asked Tim to work as a consultant analysing the world's gold markets, initially with a brief to visit the important gold centres from London to Hong Kong and to produce a report, which soon became the annual Gold Survey. During the next 30 years, Tim's involvement in this work provided the continuity that allowed a whole series of editors and analysts to develop an understanding of the intricate mysteries of the market. His knowledge of the market, and above all the people in it, was encyclopaedic. This applied as much to US bankers and South African miners as it did to the traders and jewellery fabricators in the souks of the Middle East. My own involvement with the Gold Survey really started in 1989 when, as a result of the takeover of CGF by the Hanson group, I was asked by Gold Fields of South Africa (which had been 50% owned by CGF) to set up a unit – that became GFMS – in London to continue the research activity on gold. My first task was to ensure that Tim would continue as Chief Consultant to the Gold Survey.

On our first field trip, which included my first meeting with one of the legendary Swiss bankers, I began to learn the research techniques that Tim had developed over the previous two decades. These could be summed up, firstly, as total discretion in respecting the often highly confidential information that our contacts entrusted to us, but secondly, providing these contacts with useful information about general trends that we were learning as we moved around. The small team of analysts at GFMS all learned most of what they knew about gold thanks to Tim's knowledge and guidance.

Throughout this period, Tim has continued to write about gold and sometimes silver. His early journalistic training has ensured that all these books are extremely readable as well as being full of well-researched content. These publications include what are probably my favourites: *The Gold Companion: The A-Z of Mining, Marketing, Trading and Technology*, two slim volumes describing the main developments in gold and silver during the millennium from 1000 to 1999, which he wrote for MKS Finance in 1991; and more recently, *The Ages of Gold*, a compendious account of gold's 6,000 years of history, which was published in 2007 by GFMS.

The LBMA has also benefited from Tim's legendary status in and knowledge of the gold market. He was the opening speaker at the LBMA's first conference in Dubai in February 2000. In 2010, he suggested to me that he should prepare a history of the Good Delivery gold list from its origins in the Bank of England in 1750 to the present day. This was published by the LBMA the following year as *Building a Global Brand*.

Late last year, Tim very generously offered to donate to the LBMA his complete and extensive collection of books on gold and silver. This collection now takes pride of place in our Boardroom and is much admired by visitors to the LBMA. Some of the books in the collection are extremely rare and many of the historical gems in it are described in the selected bibliography that Tim produced for the LBMA in 2011 (and that can be downloaded from our website).

Tim will soon be approaching the 50th anniversary of his first involvement with the gold market. It is a great pleasure for me on behalf of the LBMA to salute him for all that he has contributed to the world's understanding of how that market works and, in particular on this occasion, to thank him for choosing the LBMA as the recipient of his wonderful collection of books.

LBMA Annual Party - 2013

The Association's Annual Party was held at the Pacific Oriental on Thursday 28 February. Another record attendance of more than 350 Members and Associates were entertained throughout the evening by an array of amazing singing talent from Hannah May, the Segue Sisters and Charlotte Bradford. The same cannot be said for the gentleman who was singing in the toilets towards the end of the evening, but he certainly helped to ensure that the venue was vacated on time.

The Party provides an opportunity for staff of Members and Associates to network and socialise in a relaxed and informal atmosphere. From all accounts a thoroughly enjoyable evening was had by all.

10 Years On. The Gold ETF that Spawned a $200 Billion Industry

By Nik Bienkowski, Co-Founder of Boost ETP

In this article Nik Bienkowski considers the way that the gold ETP has changed the way investors think about gold and commodities. With $130 billion (80+ Moz) accumulated in ten years, the gold ETP (as a proportion of the global ETP industry) has taken on greater significance than one might have ever imagined.

The 28 March marked the 10th anniversary of the gold Exchange Traded Product (ETP) industry. The gold ETP changed gold investing as we knew it, allowing investors to 'own' physical gold bullion and to trade this through their mobile phone and brokerage account. Gold could now be traded like an equity. What now seems simple and hugely successful was initially complex in design. Now, there are some 54 physical gold ETPs with $130 billion in assets and daily trading of more than $2 billion. It would not be surprising for there to be between 100 to 150 gold ETPs by March 2023.

We can't ignore the fact that the gold ETP came about during a time that was extremely supportive for gold, especially relative to equities. Whatever one's reasons for investing in gold, there has been a reason for everyone to invest in gold since the gold ETP was launched. Gold ETPs and Exchange Traded Commodities (ETCs) make up 7% and 10% of the global ETP market respectively, which is high relative to average portfolio allocations – this statistic may indicate the importance of the gold ETP to investors as a way to access the gold price. The gold ETP made investing in gold secure, simple, cost-efficient and extremely simple. The gold ETP certainly was the right product at the right time. It will be interesting to see what happens over the next 10 years.

Background to the development of the gold ETF

28 March 2013 marked the 10th anniversary of the world's first gold ETP[1] and hence the gold ETP industry. It was on the same day in 2003 that Gold Bullion Securities began trading on the Australian Stock Exchange (ASX) under the ASX code of 'GOLD'. GOLD was developed by Gold Bullion Limited (a predecessor to ETF Securities), a special purpose vehicle created by Graham Tuckwell in association with the World Gold Council, over a nine-month process. However, many other events occurred to make the gold ETP what it is today, including: a Wine Exchange in Australia, which used listed securities backed by physical wine in storage to allow investors to trade actual cases of specified wine (similar to an Exchange Traded Fund (ETF) 'creation basket') and which GOLD was modelled after; an Australian entrepreneur whose idea of a gold ETP coincided with the World Gold Council's plans to do the same in the US; and the growth and success of the global ETP and ETF industry generally.

GOLD's announcement after the first day of trading read:

Investors bought more than 700 ounces of gold on the ASX today – the first time it has been possible for funds and individual traders to buy gold bars on the stock exchange. 7,386 GOLD securities were traded for prices ranging from $55.50 to $56.00 today. The average trade was 172 securities – or 17.2 ounces of gold per investor at $9,540 per trade, indicating individual investors were the main traders on the opening day.

"Before the gold ETP came along, there were a number of ways to invest in gold, which included buying direct bullion, gold certificates, gold coins, gold savings plans and purchasing shares of gold mining companies."

Launching with less than A$5 million in assets (supported by Tuckwell himself), GOLD was a mere drop in the ocean but one that has helped to create an industry with at least 54 physically backed gold ETPs with around 81 million oz, worth $130 billion, in assets and daily trading volumes of over $2 billion, including one of the world's largest ETFs, the GLD.

The gold ETP – gold investment made simple

Before the gold ETP came along, there were a number of ways to invest in gold, which included buying direct bullion, gold certificates, gold coins, gold savings plans and purchasing shares of gold mining companies. Each of these ways to gain exposure to gold came with its own advantages and disadvantages; however, there was no way of owning physical gold simply and cost-effectively. The gold ETP combined the advantages of Exchange Traded Funds (which

1 In this article, ETP is short for Exchange Traded Product. GOLD in Australia was the first gold ETF; however, in other jurisdictions (e.g. Europe), it is not possible for a fund to own gold and, hence, many gold ETPs are structured using a gold-backed security. These are also often referred to as ETCs (Exchange Traded Commodities). Whereas an ETF is a fund under the local laws, an ETP (which can track any asset class) or an ETC (which tracks a commodity) is a generic term used to refer to any ETF-like product, which may be a fund, note or certificate, but otherwise extremely similar in purpose.

were first created more than 10 years before GOLD) and that of owning physical gold bullion:

- Exchange traded: easy to buy and sell as little as one share (approximately 0.10oz), in an ordinary brokerage account
- Simple and convenient: can be traded in small or large amounts, and without the need to open special accounts or sign special documentation
- Open-ended: creation and redemption through delivery or receipt of physical gold bars means that gold ETPs will track gold bullion prices
- Allocated bullion: backed by globally accepted London Good Delivery bars, allocated bullion is free of credit risk
- Cost-effective: charges of around 0.40% p.a. with no entry or exit fees (other than equity brokerage charges)
- Tracks the gold price: a gold ETP is 100% correlated with the gold price
- Robust, secure and transparent: most gold ETPs have excellent websites and information, including gold bullion bar lists
- Eligible: certain types of investors, including many types of funds, are not allowed to own physical commodities. These rules probably stem from when gold bullion was less mainstream and thought to be relatively 'illiquid' since it was not listed. With the advent of a fund or security backed by gold, restricted investors were able to purchase gold ETPs, thus physical gold could be indirectly be held by investors previously barred from such investment. This opened up gold investing to the masses.

Now that the gold ETP exists, the idea and product seem so simple. However, its simplicity is contained in its complexity. The gold ETP often brought equity trading and commodity trading together like never before. These departments at large investment banks are well separated, and often located in different offices and even countries. Their standard contracts use different terminology (e.g. ounces versus shares); they are often regulated by different entities, e.g. the Commodity Futures Trading Commission (CFTC) versus the Securities and Exchange Commission (SEC); and the staff of these very different departments often didn't know the other existed, or at least they had never met before.

Why invest in gold – the growth of alternative assets

A number of events occurred to make the gold ETP possible, which in turn made gold investing simple and easy. However, many investments are simple and easy to access yet don't last long enough to turn a profit before they are shut down. But luckily for the gold ETP, the perfect storm was brewing! People invest in gold for many different reasons and gold behaves differently at different times. Many of the reasons as to why one would invest in gold have really come to the fore since the turn of this century.

Gold is uncorrelated to the major asset classes. However, during times of stress (e.g. when equities have fallen by more than a certain threshold, e.g. 2%), gold tends to outperform other assets and be negatively correlated, making gold a useful tail risk or event hedge, especially when trust is low and/or credit risk appears to be high.

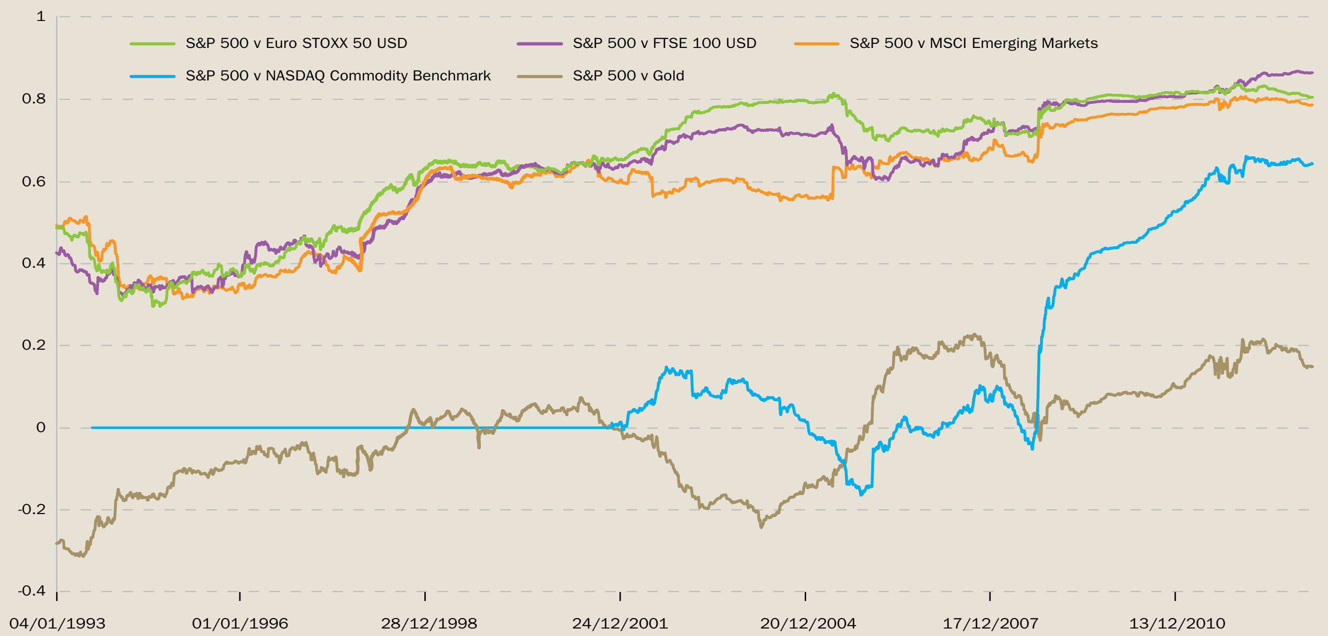
With equities having performed poorly over the past 11 or so years and having become more highly correlated with each other due to the globalisation of financial markets, alternative assets came to the fore as investors sought out alternative assets that would help to diversify their portfolios and reduce downside risk. Hedge funds, gold and commodities suddenly became popular.

"Now that the gold ETP exists, the idea and product seem so simple. However, its simplicity is contained in its complexity.The gold ETP often brought equity trading and commodity trading together like never before. These departments at large investment banks are well separated, and often located in different offices and even countries."

Fundamentals have also played an important part. On the supply side, central banks started to limit gold sales and then became net buyers; gold-mining companies stopped selling forward their production at low prices ($250 to $300/oz back in the late 1990s and early 2000s); and production in the main gold-producing regions (US, South Africa, Australia and Canada) began to slide and production costs started to rise. On the demand side, gold started to play a part in portfolios, the gold ETP started to add to demand, low interest rates lowered the opportunity cost of holding gold versus other risk-free yielding assets such as sovereigns, and emerging markets such as China started to become major buyers and investors in gold.

Whatever your reason, there have been many great reasons to own some gold over the past 10 years.

Figure 1: Rolling 3-Year Correlations (of Weekly Returns)

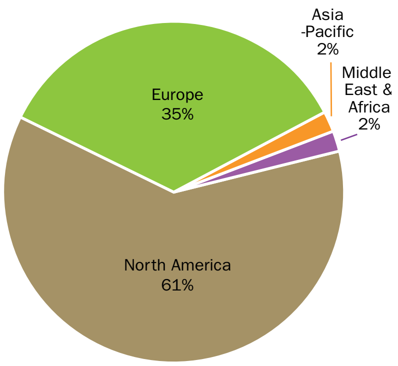


Data Source: Bloomberg and Boost ETP, at 22 March 2013

Growth of the gold ETP market

Since the launch of GOLD in March 2013, the gold ETP industry has expanded exponentially. Most of the world's top ETP issuers now have at least one physically backed gold ETP, and there are around 54 physical gold ETPs traded on 35 stock exchanges, trading around $2 billion per day. 97% of these products are exposed to the US dollar gold price, with 3% being hedged into a range of major currencies but primarily the Swiss franc and the euro. 61% of gold ETP assets are due to products listed in the US, with 19% in Europe (excluding Switzerland) and 16% listed in Switzerland.

Figure 2: % Gold ETPs Assets by Region



Data Source: Bloomberg and Boost ETP,at 22 March 2013

In addition, there are now around an additional 70 Exchange Traded Products (often referred to as ETCs) tracking spot gold or indices based on gold futures, which make up around $2.5 billion of assets under management. The main gold futures indices include the NASDAQ Commodity Gold Index and the S&P GSCI Gold Index, and these index providers are the world's leading mainstream providers of financial indices. These ETCs provide a range of gold investment exposures, including currency hedged, short and leverage.

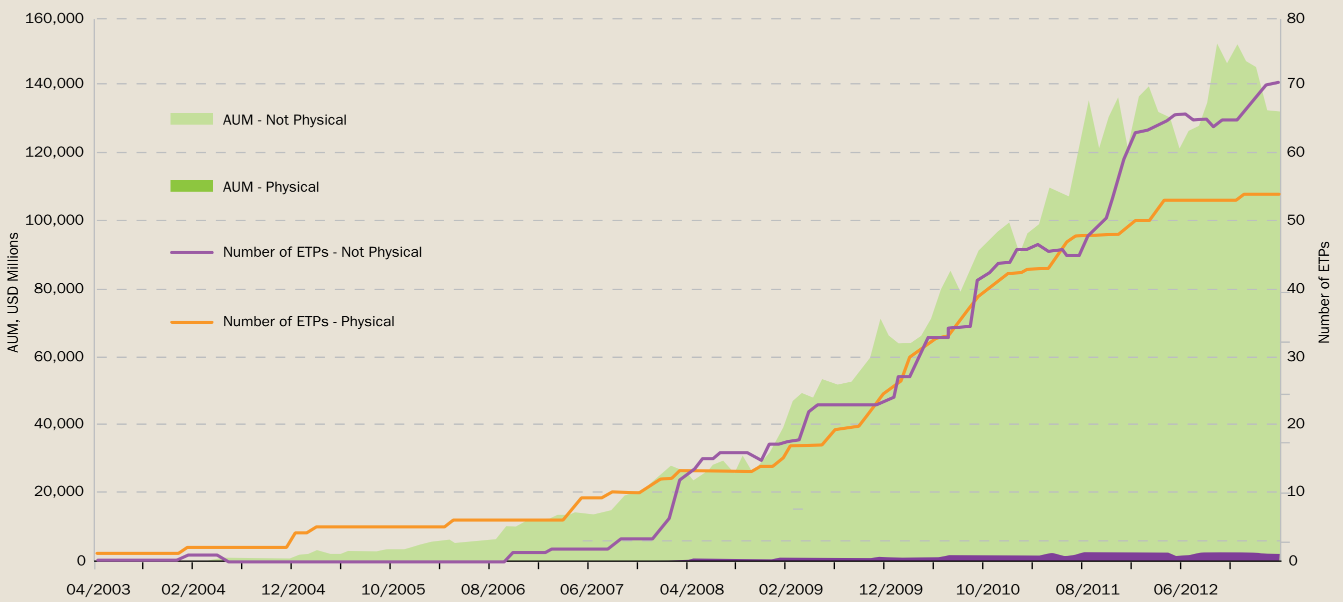
The gold ETPs and the development of the global ETC market

When the world's second gold ETP – Gold Bullion Securities (GBS) – was launched in London by a company that would later be known as ETF Securities, it was not listed as a fund but as a collateralised note backed 100% by allocated gold bullion. These products are now commonly referred to as Exchange Traded Commodities (or ETCs). GBS in London was not able to be listed as a fund (or ETF) since European fund rules did not allow investment in commodities, while a fund also has to meet certain diversification requirements – of which an investment in gold only obviously does not conform. Thus, the ETC or ETP market was born where ETF-like products could be created, providing access to products not eligible as a fund. The global ETC market thus grew from a single gold ETP to a market that now includes products tracking more than 30 different types of commodities and sectors with around $200 billion of assets (including gold). At $130 billion, gold dwarfs all other commodities.

Ticker	Name	Domicile	AUM, USD Mil	% of AUM in Category, Cumulative
GLD US	SPDR Gold Shares	United States	63,107	48%
IAU US	iShares Gold Trust	United States	10,910	57%
PHAU LN	ETFS Physical Gold	Jersey	7,637	63%
GBS LN	Gold Bullion Securities Ltd	Jersey	7,042	68%
JBGOUA SW	JB Physical Gold Fund	Switzerland	5,371	72%
ZGLD SW	ZKB Gold ETF	Switzerland	5,064	76%
SGLD LN	Source Physical Markets Gold P-ETC	Ireland	3,461	79%
4GLD GR	Xetra-Gold	Germany	2,778	81%
ZGLDUS SW	ZKB Gold ETF-A USD	Switzerland	2,670	83%
PHYS US	Sprott Physical Gold Trust	Canada	2,624	85%
GLD SJ	NewGold Issuer Ltd	South Africa	2,331	87%
SGOL US	ETFS Swiss Physical Gold	United States	1,855	88%
ZGLDHC SW	ZKB Gold ETF-H CHF	Switzerland	1,804	89%
CSGOLD SW	CS ETF II CH on Gold	Switzerland	1,606	91%
XAD1 GR	db Physical Gold Euro Hedged ETC	Jersey	1,402	92%
ZGLDEU SW	ZKB Gold ETF-A EUR	Switzerland	1,341	93%
GTU US	Central GoldTrust	Canada	1,116	94%
AUCHAH SW	UBS Index Solutions - Gold CHF hedged	Switzerland	933	94%
CSGLDC SW	CS ETF II CH on Gold - hedged CHF	Switzerland	745	95%
GOLD AU	ETFS Physical Gold	Australia	628	95%

Top 20 physical gold ETPs globally
Data Source: Bloomberg and Boost ETP, at 22 March 2013

Figure 3: Growth of Physical and Non-Physical Gold ETPs



Data Source: Bloomberg and Boost ETP, at 22 March 2013

What is surprising is that the original GBS in London was restructured and relaunched four months after the initial listing. In normal circumstances, this would have spelt the death knell for a new company and new product coming to market, but such was the demand for gold and the GBS, that it was only a wrinkle, and from which spurned a $30billion asset manager.

The benefits of gold ETPs have outweighed the benefit of equity ETPs

ETCs have brought new asset classes into the reach of every investor, increasing the size of the investors' tool box. Until the advent of ETCs almost 10 years ago, individual investors had lacked low-cost, convenient tools for participating directly in commodities without dealing in complex derivatives markets or purchasing the shares of commodity mining companies. In terms of the global ETP market, there are approximately $2 trillion in assets, and with $130 billion in gold ETPs and $70 billion in commodity ETPs (excluding gold), gold makes up some 7% and commodities (excluding gold) make up around 3% of all global ETP assets. Some would say that this allocation to gold and commodities is too high; however, two main points to consider are: (i) the environment has been favourable to commodities and gold; and (ii) ETCs make investing in commodities extremely simple. Since the allocation to gold (at 7%) is so high, this seems to suggest that the benefits of the gold ETP to the ETP market outweighs the benefits of other ETPs. We would guess that it is more the latter since the gold ETP made investing in gold secure, simple, cost-efficient and extremely simple. In fact, since Swiss-domiciled gold ETP assets contribute nearly half of all European gold ETP assets, it is quite possible that the other European countries have some making up to do.

Gold and the next 10 years

The creation of the gold ETP and ETC industries has provided access to commodities for a wide range of investors who previously could not easily access commodity prices/indices in a robust and transparent structure. It has brought gold into the hands of ordinary investors and portfolios, and is now more than just the price per ounce quoted on the daily news.

The next 10 years will be interesting. More gold ETPs will be developed as the remaining ETP providers look to add gold ETPs to their product offering. Gold ETPs still haven't reached their potential, especially in Asia, and China is yet to launch a range of gold ETPs that are supposedly in development. Currently, there are around 54 physically backed gold ETPs and it would not be surprising for this to grow to between 100 to 150 gold ETPs by March 2023.

It will also be interesting to watch financial market developments. Will the 'perfect storm' and other factors supporting gold remain in place or will equities take over? Will gold break that $2,000 mark or will gold slowly retreat like it did between 1980 and 2000 when *Time* magazine and many investors called for the "Death of Gold"? Perhaps investors will reduce their allocation to gold and commodities relative to equities. Whatever happens, we can be sure that the last time the masses proclaimed the death of gold, we experienced the birth of the gold ETF.

Nik Bienkowski, Co-Founder of Boost ETP.
Nik is a leading specialist in Exchange Traded Products (ETPs) with over 10 years' experience in the sector. Nik joined a boutique firm in 2002 headed by Graham Tuckwell, where he became the third member of the team which created the world's first gold ETP on 28 March 2003, Gold Bullion Securities. Nik then helped Graham found ETF Securities Limited where he helped to manage the business from incorporation to over 70 people and $22billion in AUM by October 2010. Since leaving ETF Securities, Nik co-founded Boost ETP, a specialist provider of short and leverage ETPs.

Access daily LBMA gold and silver prices direct from LME data distributors

From $15 per user, per month you can now access 5pm gold and silver data from the London Bullion Market Association's forward market makers.

Data sets include:

- Spot prices
- Forward rates – out to 10 years for gold and 3 years for silver
- Gold IRS – 12 months out to 10 years

Accessing the data

Subscribe to the full LBMA data set via LME's licensed data distributors.

Visit www.lme.com/LBMAdataset or www.lbma.org.uk

LBMA

Nothing in this document constitutes an offer or a solicitation of an offer to buy or sell any security or other financial instrument or constitutes any investment advice or recommendation of any security or other financial instrument. To the best of the LME's knowledge and belief, statements made are correct at the time of going to press. The LME accepts no liability for the accuracy of any statement or representation. The London Bullion Market Association (LBMA) licences the distribution rights for the Gold Forward Curve and related products (the "LBMA products") to the LME. All rights in the LBMA Products are retained by the LBMA.
The LBMA Products are available to the LME on an "as is" basis and as such, no representation, warranty or condition, express or implied, statutory or otherwise is given or assumed by LME. © The London Metal Exchange. A member of HKEx Group. No portion of this publication may be reproduced without written consent.
The London Metal Exchange, 56 Leadenhall Street, London, EC3A 2DX. Telephone +44 (0)20 7264 5555, www.lme.com

LONDON METAL EXCHANGE

Gold and Unlawful Armed Conflict

- Working Together Towards Responsible Gold Production

By Terry Heyman, Director, The World Gold Council and Ruth Crowell, Deputy Chief Executive, LBMA

Industry Cooperation

Responsibly undertaken gold mining and refining can play an important role in achieving sustainable development and alleviating poverty in developing countries. Indeed, disinvestment or withdrawal by responsible miners and refiners can make it more difficult to stabilise a conflict situation or to achieve post-conflict reconstruction.

This article outlines the factors that have led governments, business and civil society to work together to address the misuse of gold to fund armed conflict and the human rights abuses associated with such violence. It outlines the initiatives that the gold industry has put in place to provide confidence to investors, customers and communities.

The role of natural resources in funding conflicts has been a focus for policy makers, non-governmental organisations (NGOs) and business over the last 15 years. The role of diamonds in financing the civil wars in Liberia, Sierra Leone and Angola led to the creation of the Kimberley Process. A broad range of natural resources, including timber and oil, which represent mobile internationally tradable assets, have unfortunately been linked to unlawful armed conflict.

One of the countries of most concern is the Democratic Republic of Congo (DRC). Reports from the United Nations Group of Experts have highlighted the role of resources in partially funding rival militias as the conflict has dragged on in the volatile eastern provinces. Originally, attention focused upon tin, tantalum and tungsten (the '3Ts'), but recently, artisanally and small-scale mined gold (ASM) has increasingly come in to the picture.

Industry-led Initiatives

Given these concerns, the gold industry has been working over the last few years to ensure that investors, customers and communities can have confidence that gold is not contributing to unlawful, armed conflict. This is an important commitment from the gold industry and supports the increasing recognition that gold has an important role to play in contributing to sustainable development along the entire supply chain. These industry-led initiatives also complement and help 'operationalise' government-led initiatives, in particular, the OECD Due-Diligence Guidance on responsible supply chains from conflict-affected areas. A key theme of the Guidance developed by the Organisation for Economic Cooperation and Development (OECD) – and the conversations that have been undertaken through the multi-stakeholder group convened by the OECD – has been the recognition that a responsible minerals trade should be supported as a means to broader social and economic development. Indeed, a blanket disinvestment or withdrawal, a so-called 'de facto embargo', would have a severely negative impact on the livelihoods of potentially millions of people, and therefore would likely be a destabilising influence in conflict-affected areas and so exacerbate problems of poverty and instability.

The World Gold Council's Conflict-Free Gold Standard has been developed to support responsible gold production in conflict-affected areas. Where operators can demonstrate that they have the processes in place to operate in such locations, they should be encouraged to do so. Of course, external credibility is vital and companies that conform with the Conflict-Free Gold Standard will be required to publicly disclose their conformance and have this externally assured. In such a way, investors, customers and communities can have confidence that the gold has been produced in a way that is not contributing to the conflict and associated human rights abuses.

Work on the Conflict-Free Gold Standard started in December 2009 at the request of the Board of the World Gold Council, comprising CEOs and senior executives from member companies, the world's largest gold producers. The Standard was published in October 2012 and the nearly three-year development programme reflects the complexity of the issue and the extensive consultation and outreach that was undertaken. The LBMA Responsible Gold Guidance was also developed over a similar timeframe and applies to gold refiners. In particular, gold refiners that wish to be accredited by the LBMA on the 'London Good Delivery List', regarded by many as an essential requirement in order that their gold can be traded in London and other international financial markets, need to conform with the Guidance. Both the Conflict-Free Gold Standard and the Responsible Gold Guidance help to operationalise the OECD Guidance, providing specific, actionable criteria to help companies ensure that they have the appropriate systems in place to minimise the risk that they are contributing to conflict.

> *"This is an important commitment from the gold industry and supports the increasing recognition that gold has an important role to play in contributing to sustainable development along the entire supply chain."*

Government-led Initiatives

In May 2011, the OECD produced its Due Diligence Guidance for Responsible Supply Chains for Minerals from Conflict-Affected and High Risk Areas. This Guidance has global applicability and covers gold and the 3Ts. A specific Gold Supplement to the Guidance, which involved substantial industry input, was adopted in July 2012. Both the guidance and the gold supplement focus on due diligence processes designed to achieve continuous improvement and to minimise the risks of sourcing conflict-tainted minerals – rather than labelling the mineral itself as 'contributing to conflict'.

In a simultaneous development, the United States has also regulated on this issue. In July 2010, President Obama signed the Wall Street Reform and Consumer Protection Act (Dodd-Frank) into law. While the vast majority of this legislation relates to financial reform in light of the economic crisis, section 1502 addresses 'conflict-minerals' originating in the DRC. To a degree, section 1502 reflects new policy instruments being used for US foreign policy. By using securities legislation, intended to protect investor interests, to regulate the minerals trade in central Africa, the law intends to cut funding to armed groups by forcing US-listed companies to identify whether the gold – or 3Ts – used in their products has fuelled conflict in the DRC or adjoining countries. Following the publication of the detailed SEC rules in August 2012, these companies are required to file this information with the SEC, putting senior executives at risk of committing fraud if they are not able to support the claims that they are making.

While well intentioned, this law risks leading to a de facto embargo from the DRC and indeed much of Africa. The DRC produces less that 1% of global annual gold supply, so there are plenty of alternative sources. However, the gold industry is a very significant supporter of jobs, foreign currency and, increasingly, government revenue in the DRC, so a de facto embargo would have severe economic and social consequences.

> *"However, the gold industry is a very significant supporter of jobs, foreign currency and, increasingly, government revenue in the DRC, so a de facto embargo would have severe economic and social consequences."*

Moreover, the costs for US-listed companies in adhering to section 1502 are significant. There has been some debate as to just how much this would cost, with most estimates in a range from $5billion to $10billion. The costs are so high, principally because of two reasons. Firstly, many companies may have hundreds, thousands or even tens of thousands of suppliers, which in turn may have many suppliers. Secondly, for all metals, and in particular for gold, the metal is homogeneous and is mixed from different sources. Indeed, the high percentage of gold that is recycled each year (approaching 40% of annual supply) means that it is impossible to tell from which country or countries an ounce of gold has originated.

The OECD approach is more nuanced and avoids stigmatising minerals from any specific area. Nonetheless, attention is still required to ensure that it does not lead to the stigmatisation of responsibly produced minerals. In particular, there have been increasing concerns that artisanal miners, unable to conform to the standards expected of them, may find their

Cleaning of dore bars before labelling and transportation to refinery.

The Conflict-Free Gold Standard

The Conflict-Free Gold Standard has been developed by the World Gold Council, working with member companies and leading refiners, after a global consultation exercise involving events across five continents and the participation of leading governments, NGOs and gold users. The resulting Standard has been recognised as workable and credible, and is widely supported. It has global application and is available for use by any gold miner, and implementation will be subject to independent assurance. The Standard has five parts:

- **First,** determining whether a mine is located in a conflict-affected or high-risk area or in a country targeted by international sanctions. The Standard's principal external reference point for determining conflict areas is the Conflict Barometer, published by the Heidelberg Institute for International Conflict Research. Companies will need to exercise their own due diligence, but the use of an objective benchmark is valuable in establishing consistency of approach between mine operators. If a mine is located in a conflict-affected area, then it will need to have strong systems to monitor and control its impacts so as to ensure that it is not causing or contributing to armed conflict. If it is in a conflict area, it needs to implement stages two and three. If it is not in a conflict area, then the mine moves to stage four.
- The **second** step is the Company Assessment, which draws upon authoritative texts, such as the UN Guiding Principles on Business and Human Rights, the Voluntary Principles on Security and Human Rights, and the OECD Guidance. The Standard tests the ability of the company to manage its human rights impacts; to regulate and disclose its payments and any benefits in kind to governments to monitor the background and activities of its security provider; and assesses whether the mine has systems in place to engage regularly with local communities to facilitate 'whistle-blowing' and to resolve grievances.
- The **third** step is the Commodity Assessment, which tests the systems to track gold-bearing materials around the mine and to minimise gold theft. It also requires due-diligence checks to be undertaken on the transport providers who move the doré to the refinery.
- The **fourth** step involves externally sourced gold – which does not happen often, but may include gold-bearing material for processing from other large-scale miners – the objective of which is to ensure that appropriate due-diligence is undertaken on this gold.
- The **final** step outlines the documentation, which should be passed from the miner to the refiner to demonstrate that the gold is considered to be in conformance with the Standard.

ability to participate in the formal markets increasingly marginalised. This is a particular concern because so many artisanal miners work illegally or in a legal grey area and lack scale, and therefore they are the most vulnerable to exploitation by armed groups. Appendix One of the OECD Gold Supplement tackles this issue by setting out a forward-looking agenda to promote the increased formalisation of ASM.

Way Forward

So, how has our industry responded? Is there a way forward that is both 'right' and makes good commercial sense? We believe so, partly because 'doing the right thing' is fundamental to protecting the integrity of gold. It is likely, for example, that consumers would react if we did nothing to inhibit the misuse of gold to fund illegal armed conflict. Moreover, the emergence of due diligence requirements has created the need for industry groups to work together to create robust assurance chains cost-effectively. Along with the initiatives developed by the World Gold Council and the LBMA, other sectors have also put initiatives in place, in particular, the Responsible Jewellery Council (RJC) and the Electronics Industry Citizenship Coalition/Global e-Sustainability Initiative (EICC-GeSI).

> *"So, how has our industry responded? Is there a way forward that is both 'right' and makes good commercial sense? We believe so, partly because 'doing the right thing' is fundamental to protecting the integrity of gold."*

Integration between the various approaches is essential if we are to deliver a credible, seamless and cost-effective framework. The LBMA has already agreed mutual recognition

Pouring of gold in the smelthouse

of audit standards with the refiner audits included in both the RJC and CFS (EICC-GeSI) approaches. The LBMA Guidance also recognises that gold produced in conformance with the Conflict-Free Gold Standard meets the criteria for refiners regarding conflict (although it is important to note that there are additional considerations regarding anti-money laundering).

The reality is that society increasingly expects transparent supply chains – albeit the gold supply chain is very different from groceries, so different approaches are required. The horrific civil war in the DRC has accounted for the loss of more than five million lives and the misuse of gold is, unfortunately, one factor in the conflict. The potential for such misuse of gold is present in other geographies too. We believe that through co-operation between the major industry actors, we are putting in place systems that will help to provide assurance that our metal is associated with progress and development rather than conflict and suffering. That is an ambitious but essential goal.

Terry Heyman, Director, The World Gold Council.

Terry is a Director at the World Gold Council and leads the Responsible Gold programme. A key pillar of this programme has been the development of the Conflict-Free Gold Standard. Prior to joining the World Gold Council, Terry was a Principal at Marakon Associates, a leading strategy consultancy, where he helped clients in a number of industries on strategic issues and new product development. Terry has a MBA from the Harvard Business School and a MEng and BA in manufacturing engineering from Cambridge University.

Ruth Crowell, Deputy Chief Executive, LBMA.

Ruth is the Deputy Chief Executive of the LBMA and is responsible for the strategic commercial development of the Association, including regulatory affairs, intellectual property, communications and events including the annual conference.

She acts as the LBMA's main contact for regulatory affairs. She is responsible for the Association's work on supply chain due diligence, especially with regard to the Responsible Gold Guidance. She also represents the Association at industry, governmental and multi-stakeholder regulatory forums. She is currently a co-facilitator of the OECD Interim Governance Group. In 2011/12 she also acted as the co-facilitator of the OECD Gold Supplement Drafting Committee.

She has an MSc in History of International Relations from the London School of Economics and a degree in English Literature from Kenyon College in Ohio.

The LBMA Responsible Gold Guidance

In the refining industry, the LBMA Good Delivery List includes the world's pre-eminent refiners of gold and silver, located in 31 countries. The 'List' is widely recognised as the de facto standard for the quality of gold and silver market bars, and is used by precious metal exchanges around the world to define in whole or in part the refiners whose gold and silver bars are accepted in their own markets. Collectively, the 63 LBMA Good Delivery Gold Refiners annually refine more than 4,000 tonnes of gold.

Implementation of the LBMA Responsible Gold Guidance is mandatory for all accredited Good Delivery List gold refiners. In January 2012, all 63 of the world's leading refiners listed by the LBMA accepted the Guidance in principle and began implementation. Since then, the LBMA has received voluntary audits of some refiners' 2011 production. Currently, the LBMA is receiving and reviewing audit reports for all 2012 production. An Audit Report certifying that a refiner is complying with the Guidance is mandatory for a refiner to remain on the London Good Delivery List. Maintaining Good Delivery status is vital for any refiner to operate in the professional markets in London and around the world.

The LBMA Responsible Gold Guidance is based on the OECD due diligence framework coupled with expanding existing Know Your Customer, Anti-Money Laundering, anti-terrorist funding and security policies, processes and audits to include risk-based conflict due diligence. It is a global framework and reflects the OECD's five-step framework and draws upon definitions used in the OECD Supplement on Gold and the Financial Action Task Force (FATF) on money laundering.

The Responsible Gold Guidance goes beyond the requirements of the OECD Guidance in both its audit requirements and its definition of conflict. Auditing is required for all refinery output, regardless of the source of the feedstock – formal mining, artisanal mining or recycled metal – so that all metal going through a refinery can be identified as 'conflict-free'.

The 2013 Proficiency Testing Scheme

By Aelred Connelly, Public Relations Officer, LBMA

Aelred Connelly reviews the LBMA's 2013 Proficiency Testing Scheme.

The LBMA recently completed the second Proficiency Gold Testing Scheme, following its introduction last year. The scheme is voluntary, open to all GDL gold refiners and designed to assist them in improving their assaying accuracy in relation to a large group of their peers.
It is expected that labs will already be using well-established, validated methods of assaying, as well as adopting internal quality control procedures. Proficiency Testing (PT) adds an important layer of external quality control to these internal procedures.

Forty of the 63 LBMA accredited gold refiners participated in the scheme, with a healthy representation from every continent (with the exception of Antarctica), including 17 from the Far East. This provided an excellent consensus for the scheme; the more that participate, the more robust the results.

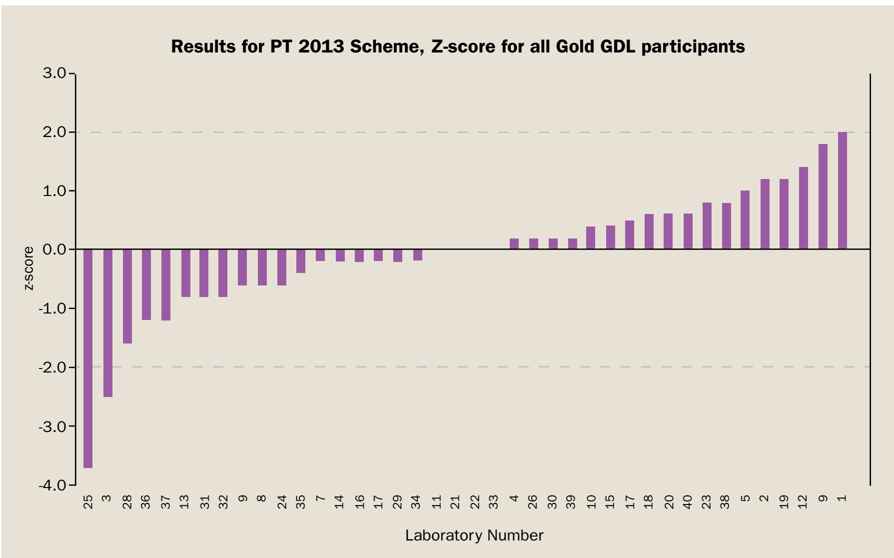
Participants were given one gold sample of approximately 3.3 grams, 2.5 cm in length, with a minimum purity of 995 parts per 1,000 and typical impurities being copper, silver, platinum and palladium. The sample was an existing LBMA reference material sample, and was produced and checked by the LBMA referees to ensure that all participants received and tested the same sample. Participants in the scheme are required to provide four to six results on the sample, either by Fire Assaying, where they would be required to do an absolute determination of the gold present in the material, or alternatively by dissolving the material and running it on ICP whether optical or mass-spec for impurities.

Participants then had to submit their results to the Food Analysis Performance Assessment Scheme, or FAPAS for short, which worked closely with the LBMA, in their capacity as facilitators of the scheme. Although FAPAS is more generally associated with food testing, it has a wealth of knowledge and expertise, running in the region of 500 PT schemes each year. An important element of PT is that the identity of the participants remains anonymous. Not even FAPAS or the LBMA know the identity of the labs participating.

The results of the scheme can be expressed in a number of ways. The average value for the whole set of assays was a fineness of 998.28. In proficiency testing, the best known measure of a participant's performance is the Z-score. The graph below shows these scores for all participants.

If a participant's results are evenly distributed then the Z-scores will be evenly distributed too. A Z-score of between 0 and 2, ie between two standard deviations from a participant's mean result, indicates that the lab may have an issue with the accuracy of its assaying. It is hoped that all labs can draw positively on their results and, in particular, that those labs on the edge of the distribution can incorporate the feedback in the report into their own quality control procedures so as to improve their assay testing procedures. But it is important not to interpret the results as a pass or fail. They are snapshots of how the labs performed on a particular day. The important thing to try and do is to build up a data set over time, which is one of the reasons why the LBMA will continue to operate the PT scheme next year. And as mentioned earlier, the greater the number of participants, the greater the consensus, so if there are any GDL gold refiners that didn't participate this year but that would be interested in doing so next year then please let us know.

FAPAS undertook a range of other statistical analyses of the results, which are described in full in its report and were made available to those labs that participated in the scheme. The LBMA, FAPAS and one of the GDL refiners that participated in the scheme, Umicore Precious Metals, delivered presentations on Proficiency Testing at the LBMA Assay & Refining Seminar (A&R) on 10-12 March. The presentations and transcripts are available on the LBMA's website. The possibility of extending the scheme in the future to include GDL silver refiners was also discussed and received positive feedback, so this will be something that will be seriously considered as a future extension to the current scheme.



The Fifth LBMA Assaying and Refining Seminar

By Aelred Connelly, Public Relations Officer, LBMA

The fifth LBMA Assaying and Refining Seminar (A&R) was held on 10-12 March 2013 at the Tower Guoman Hotel. Once again the Seminar proved a great success, attracting a record attendance of more than 150 delegates from 28 countries, with excellent representation from Good Delivery refiners and LBMA Members and Associates.

There was a wide range of interesting presentations with sessions covering new bar production initiatives, different assaying techniques, the LBMA's Proficiency Testing Scheme and the Due Diligence initiatives for gold. The LBMA received very positive feedback from delegates including some interesting suggestions for topics for inclusion in the next A&R Seminar in 2015.

The Welcome Reception on the Sunday evening attracted more than 100 people and 120 delegates attended the Monday night dinner at the Dickens Inn, St Katherine's Dock. Thanks go to all the speakers who delivered presentations at the seminar and who helped make it such a great success.

The presentations and transcripts are available on the LBMA's website.

Regulation Update

– Responsible Gold Programme

By Ruth Crowell, Deputy Chief Executive, LBMA

Third-Party Audit Implementation – First 2012 Responsible Gold Audit Reports Received

The LBMA is delighted to announce that it is in the process of reviewing its first batch of Responsible Gold Audit Reports. These include voluntary audits for 2011 production as well as mandatory audits for 2012 production.

All LBMA Good Delivery gold refiners accepted the Responsible Gold Guidance in January 2012 and began implementation of Steps 1-3. Refiners are now in the process of undergoing or arranging Step 4 or Third Party Audits of 2012 production. The LBMA has communicated to all Good Delivery gold refiners that receipt of a 2012 Responsible Gold Audit Report is mandatory for maintaining their accreditation.

Basel III Implementation – European Developments

On 16 April, the Europe Parliament voted in favour of the final text of the Capital Requirements Regulation (CRR) and Directive (CRD IV). CRR & CRD IV implement Basel III (the international regulatory framework for banks) into EU law.

The European Parliament vote was originally scheduled for October 2012, but was delayed due to more than 30 rounds of negotiations. These negotiations did not focus on gold, but a number of controversial issues, including the compromise text on bankers' bonus caps. The final text includes specific recommendations in favour of gold. These recommendations legally require the European Banking Authority (EBA) to review the case for gold's inclusion in the 30-day short-term liquidity buffer (the "Liquidity Coverage Ratio"). The European Commission tasked the EBA with this decision in July 2011. A final report from the EBA to the European Commission is expected by 31 December, 2013.

The EBA has already started this review process by including specific mention of and questions on data sources for gold in its recent Discussion Paper (February 2013). In response to these questions, the LBMA has assisted the World Gold Council in preparing a dossier to further make the case for gold's inclusion in the Liquidity Coverage Ratio. This includes a letter from the LBMA focused on the clearing statistics, as well as a video and multi-media submission created by the World Gold Council. These videos will be available on the LBMA website in due course.

Implementation Timetable:

Jan 2012	LBMA Responsible Gold Guidance became a formal requirement of Good Delivery
Jan 2013	LBMA Audit Guidance was finalised
Q2 2013	LBMA encourages audits to take place for 2012 production
Q2-4 2013	LBMA encourages refiners to submit audit reports ASAP, latest 31 Dec 2013*

* For some Refiners this may be 30 April 2013, as an LBMA Audit Report will be due no later than one year after the closing of the refiner's financial books.

DIARY OF EVENTS 2013

MAY

2
GFMS Platinum Launch
Canary Wharf, London, UK
www.gfms.co.uk

13
Johnson Matthey Platinum 2013 Launch
London, UK

15
6th International Gold Summit
New Delhi, India
www.assocham.org/events

16
CPM Group Precious Metals Mining Seminar
New York, USA

JUNE

20-21
International Gold Mining Conference
Zhaoyuan, China
www.goldminingconference.com

22-25
IPMI 37th Annual Conference
J W Marriot, Pheonix, Arizona, USA
www.ipmi.org/seminars

AUGUST

5-7
Diggers & Dealers Forum 2013
Kalgoorlie, Australia
www.diggersndealers.com.au

SEPTEMBER

15-20
New York Platinum Week
New York, USA

18-20
Colorado Precious Metals Summit
Park Summit, Colorado, USA
www.precioussummit.com

22-25
Denver Gold Forum 2013
Hyatt Regency, Denver, CO, USA
www.denvergold.org/gold-forums

26-29
World Gold 2013
Hilton Brisbane, Queensland, Australia
www.ausimm.com.au

29/09 - 1/10
LBMA Precious Metals Conference 2013
Hilton Cavalieri, Rome, Italy
www.lbma.org.uk

OCTOBER

7-10
LME Week 2013
London, UK
www.lme.com/lmeweek.asp

16-17
The Gold Symposium 2013
Luna Park, Sydney, Australia
http://gold.symposium.net.au

24-25
The Silver Summit
Spokane WA, USA
www.cambridgehouse.com

27-31
Conference of Metallurgists 2013
Québec, Canada
www.metsoc.org

NOVEMBER

4-5
Europe Precious Metals Summit
Park Hyatt, Zurich, Switzerland
www.precioussummit.com

14
RBC Gold Conference
London
www.rbccm.com

26-27
NewGenGold 2013
Pan Pacific, Perth, Australia
www.newgengold.com

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

On 8 February, 2013, the LBMA admitted two new members:

- SCMI Ltd (and affiliate of Sumitomo Corporation Global Commodities, which is already a full member) and
- Bank of Montréal.

Associates

On 18 January, 2013 Oriental expressions DMCC resigned as an Associate.

On 8 February, two new Associates were admitted:

- Doduco GmbH of Pforzheim in Germany and
- Umicore SA/NV (which in effect took over the Associateship held previously by its affiliate company based in Germany which resigned at the end of 2012).

GOOD DELIVERY LIST

The past quarter has seen two companies (or looking at it differently, three refineries) being given LBMA Good Delivery accreditation.

On 8 March, 2013, the gold refinery of C. Hafner of Pforzheim, Germany was added to the Gold List.

On 26 March, 2013, both the gold and the silver refineries of Sichuan Tianze were added to the respective lists. Sichuan Tianze is located in Chengdu, which is also the home of the Great Wall gold and silver refinery, the first Chinese refinery to have been listed by the London gold and silver markets (in 1960 and 1971 respectively).

Both the above companies specialise in the treatment of secondary material including low-grade scrap and residues from manufacturing or other metallurgical process streams. During a visit to C Hafner's plant late last year, I remember being struck by the invaluable service which precious metal refiners perform by extracting valuable metals from material that would otherwise simply have to be dumped in landfills.

In March 2013, Johnson Matthey Inc (the Salt Lake City-based subsidiary of Johnson Matthey plc) changed its name to Johnson Matthey Gold and Silver Refining Inc.

COMMITTEES

Management Committee

The Management Committee has held three meeting since the beginning of the year.

The Committee agreed to join the supporters of the Futures and Options Association's EU Regulatory Handbook which will allow LBMA members to access the content of the Handbook.

During recent meetings, the Committee has discussed the question of establishing a regular collection of gold trading turnover statistics from member companies which trade gold. It recently decided that such a survey should be carried out on an annual basis starting with the calendar year 2012. The survey will be similar to that carried out for the first quarter of 2011 but with modified definitions and notes in order to ensure that the results are as reliable as possible. Members will receive the associated questionnaire form at the end of April. The Committee expects that all gold trading members will participate not only in the first survey but also those carried out in the future too.

Regulatory Affairs

The LBMA is grateful to Martin Ford of Standard Bank who has agreed to chair the RAC in succession to Ed Wells, of HSBC, who recently stepped down from the chairmanship. The RAC's main focus continues to be on the impact of impending legislation on the market (see the note about the Members Seminar on 24 April on page 25). But it has also been involved in advising the Executive on various issues related to the development of the LBMA's Responsible Gold Guidance.

Physical Committee

The Physical Committee is responsible for the LBMA's Good Delivery List, which involves the consideration of applications for accreditation by refiners, the proactive monitoring of existing refiners on the list and modifications as and when necessary to the Good Delivery Rules. The Committee also receives regular reports from other groups including the Referees (who consider a wide range of technical issues relating to bullion) and the Vault Managers (who meet primarily to ensure that the application of LBMA standards on Good Delivery bullion bars is consistent across the London market). Following the Assaying and Refining Seminar in March, the Referees and Vault Managers held a joint meeting at JPMorgan's London vault to consider the practical issues in differentiating between, on the one hand, trivial imperfections and at the other extreme serious physical defects on bars that justify their rejection.

At its most recent meeting, the Committee agreed a number of changes to the Good Delivery Rules, (which are now included in the version of the Rules on the LBMA website). The Committee is now examining a draft of a detailed specification for electronic scales suitable for weighing Good Delivery gold bars. The final version of this should be included in the Rules by mid-May.

The workload of the Committee has increased significantly this year due to the need for it to review the responsible gold audit reports submitted by Good Delivery refiners which have now started to arrive at the Executive office.

Memorandum of Understanding on Bullion Market VAT

The Physical Committee would like to record the thanks of the LBMA to the VAT Group under David Blaney of UBS for the preparation of a revised MOU on bullion market VAT. This document, which covers both the LBMA and the LPPM markets shows how VAT should be applied to various bullion market transactions. The MOU was circulated to all members of both associations in mid-April and can be downloaded from the members area of the LBMA website.

Public Affairs Committee

With the LBMA conference once again taking place in the (northern hemisphere) this is the busiest phase of the PAC's year. Recent meetings have therefore focused on program development for the conference in Rome starting on 29 September. The LBMA is pleased that once again the conference is being supported by the LPPM.

Another exciting development for the London market is that the LBMA has accepted an invitation from the LPPM to co-host a cocktail party on 19 September during the New York platinum week.

Following the great success of the LBMA's 25th anniversary dinner in London last December, the perennial question of whether the Association should have an annual dinner, perhaps alternating between London and New York has been widely discussed within LBMA Committees. Any members with views on this question are encouraged to provide feedback to the Chief Executive!

At its meeting in March, the Committee welcomed Tom Coghill of Standard Chartered Bank to fill the vacancy resulting from the departure of Philip Newman (see Market Moves on page 25). The LBMA would like to thank the other eight candidates who put their names forward to fill this vacancy. It is indeed gratifying that there is so much interest amongst the membership in serving the LBMA in this way.

Charitable Donations

The LBMA has, for a number of years now, set aside for charitable purposes, 50% of the money generated from fines levied on GOFO and SIFO contributors who fail to contribute rates more than three times in a calendar month. Last year the LBMA made donations to three charitable causes; the CHAD Relief Foundation, the Childhope and the Jennifer Trust. Other charities that have received donations in previous years include the Red Cross fund for the Japan tsunami, the St Mungo's organisation, Kids

Get Going and Cancer Research. The PAC will shortly be considering which charities should be supported this year by the LBMA and any suggestions from Members would be welcomed, particularly where staff members are personally involved with the charity.

Membership Committee

As well as vetting new applications for membership and Associateship, the Committee (together with the due diligence working party which reports to it) advises the Management Committee on compliance and due diligence questions. Recent discussions have focused on ways of streamlining the Associate review process. As a result, in future, the sponsors of current Associates will be asked annually to confirm their support for the Associates for whom they had previously supplied sponsorship letters.

Another decision, relating to applications for Associateship from refiners, was taken following discussion also by the Physical Committee. It has been agreed that only refiners which are Good Delivery accredited can apply to become Associates.

Finance Committee

The most important meeting of the year for the Finance Committee is the one held in April to review the draft accounts for the previous year. The Committee noted that the LBMA's finances continue to be in an extremely healthy position and recommended to the Management Committee that the financial statement for 2012 should be passed to the AGM in June for approval.

At the meeting of the Committee in April, David Holmes announced that after more than 30 years in the commodities markets, he would shortly be leaving Commerzbank and would in due course pursue other employment opportunities. As a result of David's departure, there is a vacancy on the Finance Committee. Anyone interested in applying should send a short statement of their relevant market experience to the Chief Executive. It is not essential for candidates to have accounting qualifications and it should be noted that applications may be accepted from representatives of Associates as well as full members.

ASSAYING AND REFINING SEMINAR

The LBMA's fifth Assaying and Refining Seminar was held in the Guoman Hotel in London from 10 to 12 March 2013. This was, without any doubt, the most successful event in the series to date, which have been held in London every two years since 2005. A brief report on the seminar is given on page 22.

MEMBERS SEMINAR

A seminar for members and friends of the market was held on the afternoon of 24 April in Merchant Taylors Hall in the city of London. The seminar focussed on two different issues. In the first-half, the topic covered was the impact on the bullion market of impending regulatory changes in both the USA and the EU. Presentations were given on these two areas by representatives of Stroock, Stroock & Lavan and Simmons and Simmons respectively . In the second half, the providers of cleared forwards (LCH/LME and the CME Group) gave updates on the use of these platforms in the London bullion market.

AGM

The Annual General Meeting of the LBMA will take place in Merchant Taylor's Hall, Threadneedle Street at 5:30pm on 19 June. This is an ideal opportunity for any interested staff in Member and Associate companies to hear about what the LBMA has been doing and to meet representatives of other member companies. This year, it will be the turn of the five market making member representatives to be elected (or re-elected). The documentation including nomination forms for the management committee election will be circulated to the LBMA contact in each member company in mid-May. The AGM will as usual be followed by an informal drinks reception.

Christian Pfeifer

Members of the bullion market in Germany, the UK and the USA were shocked and saddened to hear of the sudden and untimely death, at the age of 41, of Christian Pfeifer on 19 April during a business trip to New York, to which he had travelled to take part in the Comex Gold Week on behalf of Jefferies Bache. Christian will also be fondly remembered by his former colleagues in Heraeus, Rothschild, Mitsui and UBS. He leaves two young children, Finn and Lilly and their mother, Amanda.

LPPM/LBMA Cocktail Reception

New York
19 September 2013

The LPPM, together with the LBMA, are holding a Cocktail Reception for their members and invited guests on Thursday 19 September 2013 from 18.00 - 20.00 at the New York Palace Hotel.

Any members wishing to receive an invitation please contact admin@lppm.com

Market Moves

Andrey Skripko joins Commerzbank

Andrey Skripko recently joined the Luxembourg based Precious Metals team of Commerzbank. In his new role, he will focus on expanding the business in Eastern Europe and CIS countries. He graduated with a distinction diploma from Said Business School University of Oxford in 2012 with MSc in Financial Economics. He also holds a 1st class BSc diploma in Banking and Finance from University of London and a 1st class ("Red") BS diploma in Economics from Russian State University Higher School of Economics.

Mark Augustynak joins UBS Precious Metals

Mark Augustynak recently joined UBS Precious Metals spot desk and is based in Zurich. He moved from RBS London, where he was responsible for the spot and forward books in all metals. Until June 2012 he worked for five years for Natixis in London.

Philip Newman, Nikos Kavalis and Charles de Meester form Metals Focus

Philip Newman, Nikos Kavalis and Charles de Meester have established, as co-owners, the newly formed Metals Focus, an independent research consultancy which will produce forward looking reports on the precious metals markets as well as delivering bespoke consultancy. Philip brings 19 years of experience at Thomson Reuters GFMS (formerly at GFMS). Nikos worked at GFMS for eight years before becoming a metals strategist at RBS, while Charles has 14 years experience in metals and mining, most recently at Thomson Reuters GFMS.

Remaining Calm Under Pressure

Editorial comment by David Gornall, Global Head of Metals Trading, Natixis London Branch and LBMA Chairman

Towards the end of March, the LBMA Executive informed me that it was my turn to write the next *Alchemist* editorial. The last time I had this privilege, I wrote about regulation and during the first-half of April I prepared some comments on the impact of regulation on the precious metals market.

We are after all having an important seminar for Members on this topic and there is no doubt that all participants in the London bullion market have to focus, as never before, on what is emanating from Brussels, Washington, Basel, Helsinki and even London. The member's event which took place on 24 April will be followed on 2-3 May by a meeting at the OECD in Paris where we will back this up with the second LBMA forum focusing on the implementation of the LBMA Responsible Gold Guidance. In this event we will bring together the World Gold Council, the EICC-GeSI in the US, the Responsible Jewellery Council as well as several NGOs and government representatives not to mention our all-important refiners.

Following the first signs of the dramatic fall in prices that began to appear on the afternoon of Friday 12 April (incidentally just as we were having a meeting of the LBMA's forward Market Makers) it became increasingly clear that the topic for this editorial was going to change. It is not the job of the LBMA Chairman, or the LBMA Executive to comment on the future direction of precious metal prices. But the historical record will show that over a two-day period, the price decline was the most dramatic in nominal if not in percentage terms, since the aftermath of the 1980 price spike. Having seen this twice in my career it struck me that not all market participants are as old as me.

> *"It became increasingly clear that the topic for this editorial was going to change."*

Although this sharp fall in the gold price took almost everyone by surprise and must have been particularly shocking to younger market participants who have only seen a steady rise in price during their careers, there is no doubt that there are many people in the bullion market with long memories and great experience. So while the chattering classes suddenly started talking about gold, and the media put it on the front pages, the market did precisely what it is meant to do: it continued to service its customers' needs, regardless of whether they wanted to buy or sell.

Refiners who are recycling anything from low-grade precious metal containing waste to high-value jewellery will not be going out of business because of this price fall. This is because they have wisely hedged their exposure to price movements using the facilities provided by the London market. Investors who wanted to sell their holdings have been able to do so while producers wanting to find a market for their gold or silver have continued to do this using pricing mechanisms in London. This implies finding buyers who wish to buy an equivalent amount or more realistically, just buyers. This is essentially what has been happening over the recent days due to physical demand seen here in London trading rooms.

In the 1980s there was a certain amount of drama as we didn't have the depth of liquidity that we have today, there were no hedge funds trading Gold to the extent there are today and the concept of an exchange traded product was 20 years away. I don't remember any of us having multiple tiered stress test limits or financial ratios imposed by prudential regulators. In the 1980s it was the collective of market-making bullion banks that provided liquidity on their own.

Today of course the market is manifestly different. One of the senior members of the market was attending a wedding out of the country on that Friday afternoon and when asked whether he spent the whole time looking at his BlackBerry the answer was of course not: he had a professional team in London who were able to ensure that their customers receive the service which they needed.

The kind of price movements described above provides a good test for the robustness of the London bullion market. Members of the LBMA who between them provide a comprehensive range of bullion related services including finance, trading, market making, vaulting and security transport have responded to the recent price shocks by simply continuing to provide the usual service to the bullion market's customers. Keeping calm and carrying on may not be much of a headline but we can all take comfort from knowing that this is what the market does in these circumstances.

David Gornall, Global Head of Metals Trading, Natixis London Branch and LBMA Chairman

David Gornall started his career in 1979, trading silver at Lonconex Limited, part of the Primary Industries/Golodetz commodity trading group. After a spell at Morgan Guaranty Trust of New York, he moved to Sogemin, trading in the LME ring and heading the bullion and FX desk. In 1992 he joined NM Rothschild to start their LME base metals operation, before returning to Sogemin's successor, Natixis Commodity Markets – where he was a main board director until 2009.

David is currently the Global Head of Metals Trading at the French Investment Bank, Natixis.

David is Chairman of the LBMA and has been a member of the Management Committee since August 2005.

facing facts

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS.

Following a subdued year for transactions in 2012, are there signs that things are picking up?

Whether gauging activity by the quantum of large deals or the underlying aggregate value of transactional activity, 2012 was a quiet year. Indeed, based on data from Thomson ONE, the dollar value of deals in the gold space last year reached a three-year low, below the level in 2009 when the market was still treading cautiously in the wake of the global financial crisis.

After a swathe of multibillion dollar transactions undertaken in the gold industry over the past couple of years, the largest deal last year was Eldorado Gold Corp's acquisition of European Goldfields Ltd for around $2.4billion, which was completed in early 2012. Other major deals have included Pan American Silver's acquisition of silver and gold focused Minefinders, for around $1.3billion. To put these transactions into perspective, 2011 was the year that saw Barrick Gold Corp's $7.7billion acquisition of Equinox Minerals (a copper play) and, in 2010, the takeover of Lihir Gold (for $8.6billion) and Red Back Mining Inc. (for $7.4billion), by Newcrest Mining and Kinross Gold Corp respectively.

This apparent slow-down in 'blockbuster deals' over the past year or so has arguably been influenced by a number of factors, including decreasing confidence around the sustainability of a commodities 'super cycle' as well as a widespread (and growing) list of earlier acquisitions that, with

hindsight, appear regrettable from the perspective of the strategic value added through synergies or reserve upside; many of these have led to disappointment when it has come to project execution. Furthermore, there are a growing number of case studies where capital development costs of the next generation of organic growth have escalated sharply, serving as a sobering benchmark for companies eyeing growth through the acquisition of large, undeveloped deposits.

These factors have played a key role in the downgraded carrying values of many acquired assets. In turn, this has been a major influence that has precipitated the wave of senior management changes that has been a clear theme in the resources industry over the past year, spreading far beyond just the gold miners and furthermore motivating a stronger call by shareholders for reduced spending and enhanced returns.

Nevertheless, 2012 was a much busier year at the small to mid-cap level, with a flurry of deals valued in the order of half a billion dollars, many of which were motivated by regional expansion plans or local consolidation. At the upper end of this scale was the announcement of AuRico Gold Inc's sale of much of its Mexican portfolio to Minera Frisco, S.A.B. de C.V. for $750million in cash, which included the operating Ocampo mine and adjacent Venus and Los Jarros exploration projects, all proximal to Frisco's El Concheño project, which will be commissioned this year. In September, Australian-focused St Barbara Ltd closed its $650million cash & share acquisition of Allied Gold Mining Plc, expanding St Barbara's footprint into the South Pacific with the Gold Ridge (Solomon Islands) and Simberi (PNG) mines.

A theme of regional consolidation was present in several mid-sized deals, which included in Latin America, Yamana Gold Inc's acquisition of Extorre Gold Mines Ltd, to gain control of the Cerro Moro gold-silver project in Argentina, while Endeavour Mining Corp. continued to expand its West African footprint through the takeover of Mali-focused Avion Gold Corp; both deals were valued at over $400million.

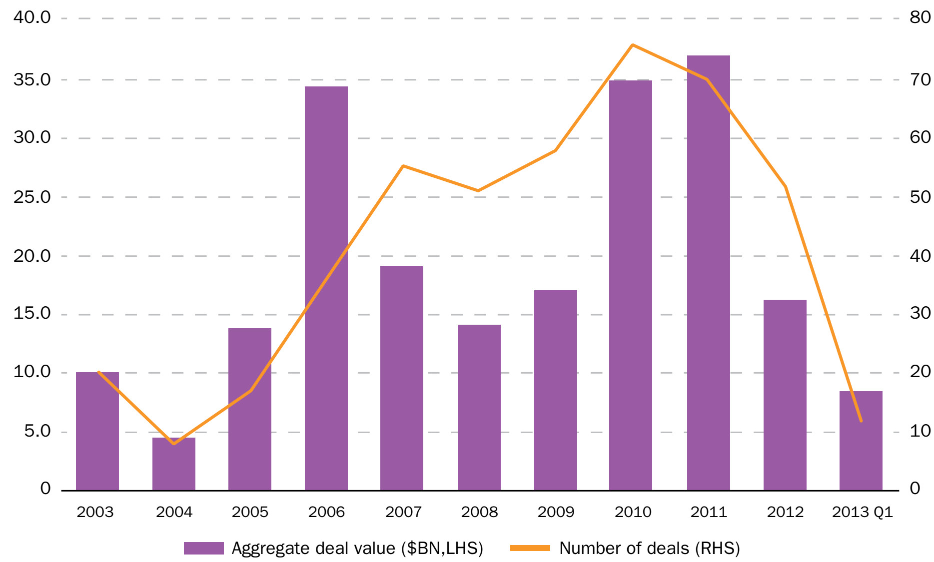
One big deal that 'was not to be' involved China National Gold Group's discussions to acquire African Barrick Gold, which extended through the second half of the year but petered out in January. Notwithstanding, are there signs of the market picking up and, if so, how does this reconcile with the earlier comments of a more cautious approach?

2013 has enjoyed a robust first quarter overall, with a handful of billion-plus dollar deals chalked up already. The combination of B2Gold Corp and CGA Mining was completed in February, in an all shares deal that valued CGA at around $1.1billion. More recently, and not yet featured in the numbers, a hostile bid for Aurizon Mines Ltd. by Alamos Gold Inc was followed by a bid by Hecla Mining Co, favoured by Aurizon's board, valuing the company at around CA$800million.

However, and putting a somewhat different slant on the deal flow, the two largest transactions to date have been divestments. These have included Gold Fields Ltd's plan to create a new company, Sibanye Gold, from its KDC and Beatrix assets in South Africa. The announcement rekindled a round of the periodic speculation that other South African majors might undertake similar moves. Gold Fields' plan was realised when Sibanye's shares commenced trading on 11 February, and the company has a current market cap of just over $1billion. A larger transaction followed, in the form of the $3.6billion disposal by Onexim Group of its holding in Polyus Gold International, representing almost 38% of the latter's share capital.

So after a couple of large transactions, it would appear as though 2013 could be a 'better year' of sorts, but one shouldn't lose sight of the motivation of some of the larger transactions that differ to the broader trend of consolidation that has prevailed over recent years, part of which has doubtless been motivated by pressure to return cash to shareholders, in our view.

Figure 1: Gold M&A plus IPOs



NB: Screened for deals of $50m+ and including IPOs;
Source: ThomsonOne.com Investment Banking

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS.

Having joined GFMS Limited as a Metals Analyst in 2005, William has eight years' experience researching the metals markets, principally covering mine production and associated producer activities. He was brought across to Thomson Reuters in a 2011 acquisition and now holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. William has accountability for the mining team's research output of global production, mining costs and producer hedging issues across the precious metals sector. In addition to undertaking research for annual Surveys, forecast reports and bespoke consulting assignments, he played a lead role in the development and delivery of GFMS' market-leading PGM Mine Economics Service. He holds a BSc. (hons.) degree in Natural Sciences from the University of Durham, where he specialised in Geology.

The Alchemist is published quarterly by the LBMA.
For further information please contact Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

VERISCAN

BULLION IDENTIFICATION SECURITY SYSTEM

The Fingerprint of the Future

Finally, bullion arrives in the digital age…

PAMP, the renowned industry innovator, once again transforms the world of precious metals by introducing the latest in Laser Surface Authentication technology: VeriScan™.

With a uniquely individual and imperceptibly present 'surface signature' that is up to four-times more distinctive than a human fingerprint, each PAMP bar is designed to enhance authenticity while offering you a world of possibilities to identify and manage your transactions of PAMP bullion.

Progressive worldwide rollout begins early 2013.

PAMP.
Produits Artistiques Métaux Précieux

TRUST IS PRECIOUS

The Art of Precious Metal Transformation®

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

LBMA

Alchemist

The London Bullion Market Association ISSUE 71 August 2013

In this issue

The 2013 LBMA/LPPM conference takes place in Rome on 29 September to 1 October. Rome, with its rich precious metals history, is an appropriate venue to hold the LBMA's 14th annual conference. Pictured is the ceiling in the Santa Maria in Trastevere, one of the oldest churches in Rome.

It’s a precious world,
we’ve got it covered.

MITSUI GLOBAL PRECIOUS METALS

Singapore • Hong Kong • Tokyo • London • New York

Singapore
80 Robinson Road,
#15-02,
Singapore 068898
Tel: 65 6372 8050
sgmpm@mitprecious.com

Hong Kong
Suite 1306,
Two Exchange Square,
8 Connaught Place,
Central,
Hong Kong
Tel: 852 2899 2026
hkmfo@mitprecious.com

Tokyo
2-1 Ohtemachi 1-Chome,
Chiyoda-Ku,
Tokyo
Tel: 81 3 3285 3407
tkjcs@dg.mitsui.com

London
4th Floor,
St. Martin’s Court,
10 Paternoster Row,
London EC4M 7BB
Tel: 44 20 7489 6761
ldnfo@mitprecious.com

New York
200 Park Avenue,
New York
NY 10166
Tel: 212 878 4122
nymfo@mitprecious.com

All the metals – all the angles – all the time

The Royal Mint Refinery, a Window onto the London Gold Market

By Dr Michele Blagg, visiting Research Associate at the Institute of Contemporary British History, King's College London

Tim Green, in his recent publication 'The London Good Delivery List: Building a Global Brand' (2010), provided a detailed account of the expansion of the London refining industry following the 'gold rushes' that took place from the mid-19th century and resulted in many new refining houses and brokerages being established in London. Inspired by Tim's research, Dr Michele Blagg built on these accounts for her own research. Here she presents a précis of her doctorial study into a bullion refining facility, the Royal Mint Refinery, operated by N M Rothschild & Sons between 1852-1967. The study, which focused on the interaction between Rothschild and the London gold market, reveals much about the significant players in the industry and contributes to the wider understanding of the current renaissance for gold.

Gold is a commodity like no other. In the twentieth century it held a unique position at the heart of international relations and financial flows in monetary systems around the world. It was the favoured commodity of the merchant bank N M Rothschild & Sons and complemented its business activities. Niall Ferguson, in *The House of Rothschild*, suggested that Rothschild was never 'jacks of-all-trades'.[1] He described the preference of the merchant bank as specialist in a number of select markets, the aim being to establish a 'dominant role' in each.[2] Throughout the 19th century the bank's relationship to gold was secured through its ability to supply consignments of bullion to governments at short notice and in large quantities. Rothschild reinforced its position to gold with a succession of investments and expansion in relations with overseas mining enterprises that maximised its command over precious metals. One such enterprise was that of the Royal Mint Refinery, a gold and silver refining facility. The prospect of taking on the refining business appealed to Rothschild who saw great opportunity in operating a refinery treating much of the bullion sent to the London market from around the world. The responsibility for the negotiations fell to Anthony de Rothschild (1810-1876), one of the sons and business heirs of N M Rothschild, who secured the lease from the Government in January 1852. The decision to add the word 'Refinery' to the previous title of the Royal Mint was a fortuitous one, affording Rothschild an element of anonymity.[3] The 'RMR' brand was internationally recognisable and accepted by central banks and private investors as 'good delivery'.

One challenge in gaining a better understanding of the London refining industry was to raise the veil of secrecy and mystery that surrounded it. Many of the daily operations were performed behind closed doors, for reasons of security and the protection of secrets in the treatment process, these the Refiner "jealously and carefully" kept to himself.[4] Another hurdle was appreciating what attracted gold to the London market. Market intelligence played a key role in Rothschild's success. In 1848 Alphonse de Rothschild (1827-1905) on a trip to New York wrote back to the Paris house that 'there is much sensation as to the gold mines in California. It seems one only has to go down and pick it up.'[5] From the Cape in 1888 he wrote to his cousins in London of:

> "the amazing stories of the riches in abundance of mining in the Cape… to listen to some of them this country has got treasures within reach as real and comparable with those of Aladdin's grotto. The gold arriving in Europe should greatly please the Bank of England."[6]

An associate of the bank, Carl Meyer had no hesitation in promoting the Cape to the London house. In his opinion 'these fields have an enormous future before them' and 'the country together will for the next 10 or 20 years offer greater scope for European capital than South America and similar countries.'[7]

> *"These fields have an enormous future before them and the country together will for the next 10 or 20 years offer greater scope for European capital than South America and similar countries."*

In 1868 Ernest Seyd noted that 'when large refineries are carried on in connection with banking, bullion operations have an influence on the supply and demand of the precious metals in the market and thereby yield indirect profits.'[8] Certainly Rothschild took full advantage of the gold rushes of California, 1848, Australia, 1851, and South Africa, 1884. The bank also benefited from its connection to the Royal Mint Refinery as it gained access to and control over much of the gold production within the British Empire, which in 1914 amounted to a massive 70 per cent of the total world gold production.[9] Gold refining facilities in London were regularly improved and expanded in response to the arrival of African gold, and the silver refinery received constant supplies of demonetised coin from across Europe.

In earlier years large shipments of bullion arrived in London in the shape of blocks; bars; ingots; pieces and coins; or in any other form in which it could be offered up to the market to be sold for the intrinsic metal value.[10] London refining firms competed against each other to secure the weekly consignments of raw gold that were boxed up and transported by coach, later by rail, to Cape Town and Durban and dispatched by ship to London. Directors of the companies donned 'their frock coats and top hats and headed into the City each morning to call on the banks, brokers and shipping agents to compete for the incoming shipments'.[11] Upon arrival the wooden boxes containing the raw gold were dispatched to the various refining houses for treatment. Once refined the bars were converted into the finished product ready for sale as pure gold and offered for sale on a Monday morning in the London market by one of the approved bullion brokers.[12] In addition to refining costs gold producers were also responsible for freight charges, insurance,

1 Niall Ferguson, *The House of Rothschild, Money's Prophets, 1797-1848, Vol. 1* (New York: Penguin Group, 1998), p. 276
2 Ibid.
3 C. E. Challis, *A new history of the Royal Mint* (Cambridge: Cambridge University Press, 1992), p. 502.
4 Ernest Seyd, *Bullion and Foreign Exchanges* (London: Effingham Wilson, 1868), p.198.
5 The Rothschild Archive, London (RAL), T49/49, 'Alphonse, New York, to Paris House', 5 Dec 1848.
6 RAL, T43/8, 'Alphonse to NMR', 29 Dec 1888.
7 RAL, T43/3, 'Carl Meyer to NMR', 26 Mar 1892.
8 Seyd, *Bullion and Foreign Exchanges*, p. 199.
9 C. R. Whittlesey, 'The Gold Dilemma' *Quarterly Journal of Economics*, 51 (1937), 581-603 (p. 598).
10 Timothy Green, *The History of the London Good Delivery Gold List, 1750-2010* (London: LBMA, 2010), p.21.
11 Donald McDonald, *The History of Johnson Matthey and Company: Vol 2, The Years of Building* (London: Private Publication, 1974), p. 104.
12 From 1850 the four bullion brokers that acted in the London Market were Mocatta & Goldsmid, Pixley & Abell, Samuel Montagu & Co., and Sharps & Wilkins.

and any brokerage fee charged for the sale of the consignment. Jean Jacques Van-Helton calculated that additional costs incurred could be in the region of 15 per cent, which meant that the standard price of an ounce of gold (£3 17s 9d) could be whittled down to around £3 10s.[13]

Gold received in London, mainly originating from southern Africa, was channeled through a variety of formal and informal links. Between 1904 and 1910 imports increased from £16.3 million to £34 million.[14] Clarke suggested the attraction to London was 'simply a reflection' of the City as a wholesale market with built-in expertise and experience.[15] Van-Helton identified four key links that attracted gold to the London market.[16] Firstly, the London gold market was the only genuinely unrestricted market; it was free from 'gold premiums, central bank interventions and so on, nothing impeded the import and export of precious metals.' Secondly, as a consequence of the Bank Charter Act of 1844, London provided a guaranteed market and minimum purchase price for gold (£3 17s 9d an ounce). Thirdly, the City was the hub of global patterns of trade and payment flows, with its myriad of financial institutions and other services it provided the Witwatersrand mines; insurance; brokerage; Stock Exchange; banking; refining facilities; recruitment of technical personnel; and the bill on London was an internationally acceptable means of payment. Moreover, in the City the majority of mining companies were incorporated as limited companies, raised working capital on the Stock Exchange, had head offices there and held their annual general meetings, credit and overdraft facilities were arranged with banking capital against anticipated revenue from weekly gold sales. Finally, and more importantly for the London refining houses, the Transvaal possessed no Mint or refinery, and as such British banks and other South African states and colonies would not recognize a Transvaal hallmark or coins minted in Pretoria.[17] With no established refinery shipments of raw gold continued to flow to London for treatment.

"The firm's refining capabilities increased from 3.3 million ounces gross weight of gold to 6.8 million by 1913.[24] Charles noted that the gold bars produced in London were 'works of art'[25]"

Picture 1: Unpacking of raw gold from abroad at the RMR, circa 1933.

By the turn of the 20th century the flow of gold to London had increased so much as to fill capacity the refineries and competition became meaningless.[18] The three principal London refining houses, Johnson Matthey & Co., the Rothschild Royal Mint Refinery and H L Raphael & Sons[19] were kept busy despite growing competition from German refineries that offered tempting rate reductions in a bid to steal business away from London.[20] On 31 December 1906 Johnson Matthey, Rothschild and Raphael entered into a formal agreement that fixed the treatment price of gold in London at 3d an ounce. It was agreed that all gold entering London would be divided between the three firms in more or less equal portions.[21] The agreement remained in force until the outbreak of war in 1914. During this period Johnson Matthey increased its own treatment capability and entered a period of modernisation by acquiring the British rights to the new electrolytic process, developed in Hamburg, which was later replaced in 1913 by a gas-fired melting house.[22] Not to be outdone Charles Rothschild, who had taken a keen interest in the Royal Mint Refinery, implemented a series of improvements from 1905 and after adopting the new chlorine method of refining, advanced in Australia since 1870, much improved the operation. Machinery and facilities were upgraded and he boasted that 'my refinery is forging along nicely'.[23] The upgrade offered a shorter processing time and thus reduced overheads and lowered refining costs. The firm's refining capabilities increased from 3.3 million ounces gross weight of gold to 6.8 million by 1913.[24] Charles noted that the gold bars produced in London were 'works of art'.[25]

Benjamin White provided a rare insight into the physical layout, management and daily operation of the Rothschild refinery. Following a visit to the refinery in 1912 he wrote that:

> "The exterior of the Refinery is lofty and massive, and the visitor, as he passes through a wicket-gate in the huge doors, receives a first impression of security and space. As [he] crosses the ample yard and becomes conscious of a somewhat sickly pungent smell, regarding which he is informed, casually, 'Oh! That is only [sulphur dioxide].' The first room, about forty feet square, is used for weighing; six large balances within glass cases range the walls, a counter occupies the centre, and stacks of silver bars, fine and otherwise, are on the floor. The actual refining takes place in a fine central hall, with annexes where minor details are dealt with. Five sets of apparatus stand side by side, each composed of a series of three tanks, two covered and on a high platform and one uncovered on a lower level. The liquid, with precious metals held in solutions, flows down to the lower tank, which measures about 12 feet by 6 feet and is about 3 feet deep. From the open tanks steam rises in clouds, for the contents are heated to 1000 degrees Celsius and the tanks are continually stirred with long poles to assist the action of the acid. The sulphate of copper in the solution gives a beautiful blue tint to the contents."[26]

13 Jean Jacques Van-Helton, 'Empire and High Finance: South Africa and the International Gold Standard, 1890-1914' *African History*, 23 (1982), p. 538.
14 John Clapham, *The Bank of England: A History, Vol. 11, 1797-1914* (Cambridge: Cambridge University Press, 1944) p. 378.
15 William M .Clarke, *The golden thread: World Financial Centres and the Gold Connections* (London: Sweet & Maxwell ltd., 2001), p. 64.
16 Van-Helton, 'Empire and High Finance', p. 539.
17 Ibid.
18 McDonald, *History of Johnson Matthey*, p. 104.
19 By 1919, a consequence of wartime restrictions, the Raphael refinery had been turned over to the production of motor vehicles. However, the venture did not prove lucrative and production ceased in 1926; see Stanley Chapman, *Raphael Bicentenary, 1787-1987* (London: Raphael Zorn, 1987).
20 In 1899 by the Deutsche Bank and German refinery, the Deutsche Gold and Silberscheide Anstalt, in an attempt to steal business away; mining companies were offering a considerable reduction on shipping and refining costs; see Van-Helton, 'Empire and High Finance', p. 537.
21 McDonald, *History of Johnson Matthey*, p. 104.
22 RAL, 000/1242, Spencer Richard, 'The Royal Mint Refinery in the Twentieth Century', 1990.
23 RAL, 000/1323, Letter book 'N Charles Rothschild to Hugh Birrel', 21 Jul 1905.
24 RAL, 148/24/3, 'Treatment of Silver & Gold 1905-1948.'
25 RAL, 000/1323, Letter book 'N Charles Rothschild to Hugh Birrel', 15 Oct 1905.
26 Benjamin White, *Silver, Its History and Romance* (London: Hodder & Stoughton, 1917), pp. 97-8.

His guide was George Buess, refinery manager 1912-1937. White noted the 'courtesy of the manager, his anxiety to explain the process and his perfect mastery of the details showed that his interest charge was by no means regarded in the light of a mere duty.'[27] While he suggested that 'the upkeep of such an establishment as a refinery, quite apart from its commercial character, [was] a source of legitimate pride to its owners.'[28] Security arrangements did not escape his notice as he recalled that 'around the central apparatus lies precious material in various stages of purity. The exposed heap of fine gold, in appearance like wet clay sand, demonstrates the need for perfect confidence between employer and employed.'[29] The matter of security was inherent to such an operation as an earlier account by Ernest Seyd demonstrates: The uninitiated might be led to think that the workmen in a Refinery, where such large masses of Bullion are under their hands, could pilfer without detection. The exact quantities of gold and silver present are, however, known with almost mathematical accuracy, and the precious metals pass from hand to hand, or in the charge of foreman, in such a way that robbery becomes almost impossible, or is, at least, at once detected.[30]

It was not merely confidence between an employer and his staff that was required but an effective deterrent and anyone caught stealing was immediately dismissed and the matter pursued through the courts.

The turning point in the fortunes of the London refining industry came in 1919. It was announced that a native refinery, located in southern Africa, was to be established, thus at some point the hegemony enjoyed by the London refiners would be called into question. Almost certainly the outbreak of war in 1914 delayed the transfer. Evidence records growing discontent amongst many gold producers at the refining costs charged in London. This, coupled with the general discord as peace returned, provided the catalyst for the post-war change; the inert price for gold during the conflict, together with rising production and wage costs, reduced profit margins, fuelled greater support for autonomy amongst the producers and revived calls for a native refinery.

Reactions in London to the news of the new African refinery were mixed. Sir Lionel Phillips, London representative of the Central Mining & Investment Corporation Ltd., urged both Johnson Matthey and Rothschild to become involved in the running of the new overseas operation. Johnson Matthey was keen to take up the offer and encouraged Rothschild to join them. Rothschild had already reviewed its options and for reasons of security, in addition to the challenge involved in establishing and operating a refinery at such a distance from London, took the stance that 'there is no advantage in helping the South Africans to cut our own throats.'[31] Instead it was decided that both refiners would reduce treatment costs, however at the Bank of England a different strategy was conjured up.

Picture 2: Royal Mint Refinery staff circa 1897

Dr Rachel Harvey, in a recent article in the Alchemist (65: 2012), looked at the early development of the London Gold Fixing and discussed the strategy formulated at the Bank of England as it attempted to control and manipulate international supplies of gold, to ensure that once gold was refined in South Africa it would continue to be marketed in London. The result was the introduction of the daily London Gold Fixing. It was the role of N M Rothschild & Sons as banker, refiner and main agent for the South African mining companies that led to the firm being invited to act as the market's chairman. Another strategy introduced at the Bank of England proved more risky and unsuccessful. In order to build greater links with gold producers, hoping that gold might continue to be sent to London for treatment even after the new African refinery was operational. It was decided that the Bank should established its own refinery.[32] From January 1919 plans were rushed through and an employee of the Ottawa Mint Refinery, Pearson, was seconded to set up a new facility in London St. Luke's to attract untreated gold, which began operating from November 1920.[33] Astonishingly the Bank announced it was prepared to 'refine at cost'.[34]

Once the Rand Refinery, located near Pretoria, began to operate at full capacity the excellent position enjoyed by the London refiners since the mid-19th century evaporated overnight. One of the first casualties was the St Luke's Refinery as it became increasingly difficult to attract gold to the new facility.[35] Johnson Matthey, faced with the possibility of no gold to treat, suspended its gold refining operation and concentrated on the treatment of platinum that became a permanent and growing service.[36] Rothschild continued to treat parcels of gold, although greatly reduced in size, which arrived in London. The operation increased its treatment of silver and also diversified into the treatment of copper foil and other metals. During the 1930s the London refiners received a short reprieve. Following Britain's departure from the gold standard in 1931 the price of gold rose by 40 per cent above the gold currency price in the London market. The inflated price stimulated a wave of new production and caused an avalanche of pre-owned gold to be returned to the refiner's pot to be recast into bullion bars and sold.[37] Rothschild benefited from the rise in price as gold requiring treatment was sent to London from areas of new gold production that emerged in west and east Africa.

The closure of the gold market and introduction of government restriction on gold at the outbreak of the Second World War halted business; the industry was forced to mark time until the market reopened in 1954.[38] At the Royal Mint Refinery the renaissance was brief, the operation became a victim of decolonisation and the independence of African states that took place during the 1950s and 60s.

The greatest threat followed the independence of Ghana in 1957. High on the new Government's agenda was the country's departure from the sterling area, regarded in London as 'a simple closure to break colonial apron strings.'[39] Before independence the best

27 Ibid., p. 99.
28 Ibid., p. 97.
29 Ibid.
30 Seyd, *Bullion and Foreign Exchanges*, p. 198.
31 RAL,111/152, 'Refinery in South Africa – Proposed establishment', 23 Jun 1919.
32 Bank of England Archive (BEA), C40/305, 'Gold St Luke's Refinery'.
33 Green, *The History of the London Good Delivery*, p. 30.
34 Ibid,
35 BEA, C40/305, Telegram 'Chief Cashier, Bank of England to Pearson, Pretoria, 29 Mar 1923.
36 McDonald, *History of Johnson Matthey*, p. 60.
37 Comparisons can be made between the experiences of the 1930s and those of the first decade of the 21st century when, following a steep rise in the price of gold from 2008, the price rise sparked a flurry of media advertisements offering 'cash for gold'. In 1932 collection points were set up in the high street by jewellers and pawnbrokers, who in turn sent parcels of gold for treatment to one of the refineries who were inundated with work.
38 The London Gold Market reopened on 22 March 1954 with a first fix of £12.42.
39 BEA, OV69/6, Ghana Report, 15 May 1961.

Picture 3: Rand Refinery office and assay office - circa Dec 1921

customer of the Royal Mint Refinery had been the Ashanti Goldfields Corporation. Gold was consigned for treatment on behalf the Bank of West Africa under a 3 year renewable contract at the Rothschild facility.[40] Once treated this was sold at the London Gold Fixing. News of the establishment of a state refinery in Ghana meant Rothschild had two options. The first was to establish and operate the new overseas facility on behalf of the Ghanaian Government. This was rejected, for reasons not dissimilar to the firm's earlier rejection of operating a South African refinery; regarding security and the challenges of running the facility such a distance from London, the second was to do nothing.[41] The Ghanaian state refinery opened in 1966 and in 1967 the partners at Rothschild made the decision to sell the Royal Mint Refinery to Engelhard. Whilst it no longer handled the raw commodity, Rothschild protected its position to gold as chair of the daily Gold Fixing that took place at its London headquarters, New Court, until 2004.

Michele Blagg (BA(hons), MA, PhD) is a visiting Research Associate at the Institute Of Contemporary British History (ICBH).
As part of a collaborative doctoral award granted by the Art's and Humanities Research Council, she was based at the Rothschild Archive, London. Her doctoral research focused on the Royal Mint Refinery, operated by N M Rothschild & Sons between 1852 and 1968, and how it adapted to the changed London gold market. Her areas of interest are in financial and business history with special regard for the actors and networks located in the London market. Her publications include 'Gold Refining in London: The End of the Rainbow, 1919-20' in The Global Gold Market and the International Monetary system from the late 19th century to the present (forthcoming, 2013); 'The Royal Mint Refinery, a business adapting to change' in Business Archives Council, Sources and History. She teaches on the ICBH MA in Contemporary British History and assists with the Witness Seminar Programme. She sits on the Business Archives Council Executive and is involved in the annual 'Meet the Archivists' workshop held in the City that aims to explore ways in which research students can identify and use business records in a variety of different research fields.

As a postscript to Michele's article Stewart Murray, Chief Executive of the LBMA, has also been delving into the archives, and adds some further observations on the involvement of the Royal Mint and the referees in the accreditation process, prior to the formation of the LBMA.

Refereeing the Good Delivery System

Delving into the history of the London Good Delivery List in the period before the LBMA was established in 1987 is always challenging. Although Rothschilds (in its capacity as chairman of the London Gold Market) passed over to the LBMA a number of files on listed refiners, there are many gaps in our detailed knowledge of how many of the accreditations were processed. However, there is no doubt that the Royal Mint Refinery played a key role in the gold market's accreditation process for much of the 20th century.

When the London bullion market reopened after the Second World War, it was recognised that some new refiners would be applying for Good Delivery accreditation and a formal system of technical assessment was required. Earlier, some refiners had been added to the list simply on the basis of being well-known to the members of the London market or at the recommendation of their local central banks. This was the case for instance for a number of French refiners and assayers which were added to the list in 1953. But in most cases, refiners which wished to be added to the list had to undergo technical testing of their assaying ability as well as their ability to produce acceptable Good Delivery bars. At that time, the London Gold Market used two referees to support this work: Johnson Matthey (based on its Royston refinery and laboratory) and the Royal Mint Refinery which was located in the City of London just outside the walls of the Tower of London. At that time the technical assessment procedure involved in the Good Delivery system was significantly different from the one which is followed nowadays.

The two main differences were
(a) the way in which the assaying test was carried out and
(b) that the two phases of technical assessment were reversed relative to current practice.

In other words, a refiner first had to submit its bars and only if they proved to be satisfactory (physically and in terms of chemical analysis) the applicant moved to the assaying test. The referees also had to check that the gold when melted poured well and made good bars. It was notable that the referees played a much more important role in assessing physical quality of the bars at that time, whereas today this aspect is primarily the responsibility of a panel of inspectors from the London vaults.

Turning to the assaying test, this was much more onerous for the referees than it is today. At that time, the applicant was invited to manufacture three sets of 24 button samples with finenesses covering the whole range from 995 to 999.9. These samples had to be assayed (using fire assay) by the applicant and by each of the referees. Another difference was that the assays were only carried out to four significant figures whereas today the comparisons are done on a five figure basis. In a sense, the referees were being tested just as much as the applicant. When all three sets of assays were completed a comparison of them would determine whether the applicant was acceptable. This method had a number of difficulties including the possibility that the three sets of samples might not be completely homogeneity.

> *"There is no doubt that the Royal Mint Refinery played a key role in the gold market's accreditation process for much of the 20th century."*

When the Royal Mint Refinery was sold to Engelhard Industries in 1968, and following the relocation of the refinery to Chessington (south-west of London) the relocated refinery was technically assessed by Johnson Matthey and by the Sheffield Smelting Co (THESSCO)

Picture 4: Beam balance scale, gifted to the LBMA by Engelhard CLAL

and after its Good Delivery accreditation was confirmed, Engelhard was subsequently recognised as one of the market's two referees. Some time after that date, a decision was made to produce reference samples in the form of rods which could be carefully cross checked between the two referees and from which "buttons" could be cut to send to applicants. These reference samples were used for assessing the assaying ability of applicants for the next 20 years.

40 RAL, 148/37/1, Ghana Gold, 28 Jan 1963.
41 RAL, 148/37,Edmund de Rothschild to Sir Edward Spears, Ashanti Goldfields', 26 Nov 1964.

When gold refining ceased at Chessington in 1998, Engelhard CLAL (as it had then become) was removed from the active Good Delivery List but because of the excellence of its laboratory it continued to serve as one of the LBMA's two referees until 2002 when the company decided to close the plant, including the laboratory. At the same time, Johnson Matthey announced that it would no longer be refining gold and silver at Royston and that it would step down as one of the LBMA referees once alternative arrangements were made.

At the end of 2003, following two years of intensive work in the preparation of gold and silver reference samples, the LBMA announced the appointment of five new referees who thus took over the baton from JM and RMR. But that is another story.

As a fitting reminder of the contribution to the Good Delivery List made by the Royal Mint Refinery and its successor, it may be noted that the gold beam balance in the LBMA boardroom was gifted to the LBMA by Engelhard-CLAL when it closed the Chessington operation (see photo).

The LBMA/LPPM Precious Metals Conference 2013

29 September - 1 October 2013
Rome Cavalieri Hotel, Rome

An excellent programme of high quality speakers will be providing their unique insight into the major issues affecting the Precious Metals Markets. Speaker highlights at this year's conference include Keynote speeches from Mr Salvatore Rossi, Director General of the Banca D'Italia and Francesco Papadia, Chairman of Primary Collateralised Securities. For the first time we also have a dedicated Official Sector Session, with senior representatives from four central banks, The Bank of England, Banque de France, Bundesbank and Central Bank of Argentina, with the session chaired by Terence Keeley, Head of Official Institutions, Blackrock. There are many other highlights in an excellent programme including sessions on both Long-term and Short-term Investment, Regulation and PGMs.

For the first time there will also be a Responsible Gold Forum on day two organised by the Responsible Jewellery Council and the LBMA which will run as Parallel Sessions to the main conference programme.

Central Bankers…Dealers…Producers…Fabricators…Refiners…Brokers…Analysts…Marketers. There's a place for all market players at the LBMA/LPPM Conference. Make sure to reserve yours. Registration for the conference is now open, visit www.lbma.org.uk for further details.

The London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
+44(0) 207 796 3067
conference@lbma.org.uk
www.lbma.org.uk

LBMA

LPPM
LONDON PLATINUM & PALLADIUM MARKET

The Degussa Collection

by Wolfgang Wrzesniok-Roßbach, Chief Executive Officer and Robert Eberlein, Department of Numismatics, Degussa Group

Degussa will present selected pieces from its collection of precious metals artefacts at the LBMA/LPPM Precious Metals Conference in Rome. It will offer delegates a time journey through 4,000 years of history.

In the last 10 years, precious metals have experienced an astonishing comeback as a means of security and wealth preservation. One should keep in mind however that of all the eight precious metals, gold and silver in particular have been used for that purpose, not only in the last decade, but more or less for the past 4,000 years.

With a turnover of around €350 million in the last quarter, Degussa Goldhandel GmbH has become the largest German investment metal trader. We are not only involved in the buying and selling of modern precious metals products on a daily basis, but we are also committed to the preservation of the longstanding history of gold and silver. Most of the coins and bars that were produced during the last 4,000 years have been repeatedly melted down and reminted during the course of time. But a few of these precious historical examples have survived in their original form to the present day.

Expanding our business activities into numismatics was one possible way of delving into the history of gold and that is exactly what we did earlier this year. Additionally, Degussa has been involved in the collection of outstanding artifacts, which is a fascinating way of learning more about gold's past, as these relics indeed witness to different eras in the history of mankind.

In our view, collecting these items and getting a deeper insight into the history of precious metals only makes sense if it is shared with others. For that reason and for the first time in this format, Degussa will present selected pieces from its collection representing four historical epochs at the LBMA Precious Metals Conference 2013 in Rome – offering delegates a time journey through 4,000 years of the history of coins and bars.

This time journey begins with the oldest bars discovered in Europe, which were produced during the Bronze Age in 2000 BC. During the whole of this period, people produced round bronze bars, similar in shape to lentils, with a diameter of up to 40 cms and a weight of between 5 and 10 kgs. The bars were transported in this "raw" state and either used as a form of payment or later transformed into jewellery or tools. Treasure finds often consist of several variations of these bars. One of these bars in the Degussa Collection has a weight of 6.1 kg and a diameter slightly over 30 cm, and is still intact. Whether it was a sacrificial offering to the gods and/or simply deposited there by a trader, is difficult to say.

Picture 1: Display units showcasing part of the Degussa collection.

> *"In our view, collecting these items and getting a deeper insight into the history of precious metals only makes sense if it is shared with others."*

In the Bronze Age, people used metal objects not only as a method of payment but also as a kind of reinvestment, by storing and preserving valuable objects or metals, and thereby for the first time the function of money was attained. That one could quite easily separate the bars is evidenced by another piece in the collection. A cast bronze mould was split and a part thereof, in this case a quarter weighing 776.5 grams, was used as a payment method.

Bars were not only produced in bronze but also in gold. The Degussa Collection consists of two gold spirals (Picture 2: Gold spirals), one with a diameter of 34 mm and the other with a diameter of 43 mm, which weigh 6.9 grams and 8.5 grams respectively. These are virtually pure gold and probably originate from the middle Bronze Age, around 1500 BC. In specialist literature, these spirals are often described as finger or curly rings. These two gold spirals belong to the oldest gold bars in the world, and it is virtually inconceivable that they have managed to survive the past 3,500 years. How many of today's present gold bars actually contain gold from the Bronze Age unfortunately cannot be estimated.

The Iron Age, whose ruling people were the Celts, followed the Bronze Age. A purse belonging to the Celts dating from around the 3rd century BC is also in the Degussa Collection.

It is assumed that the nine differently moulded and decorated gold rings with a total weight of 141.53 grams were openly worn around the waist. These were not only used as a payment method or means but were also a status symbol for rich merchants and noblemen. Eventually, the small rings were used as small change or one could split the larger rings and join them back together again.

The first coins used in Middle Europe had Celtic origins. According to legend, the so-called 'Staters' were supposed to represent raindrops falling from a rainbow and turning to gold as they hit the ground. In reality, however, the Celts got their gold from alpine rivers. Their role models were Roman and Greek coins that came to Europe via merchants around the 2nd century BC. Although the Celtic coins appear somewhat primitive, the Celts were a highly cultured

people, who in 387 BC conquered the Roman Empire with the exception of the capital city.

The first Roman coins in the form of coin bars have been identified as dating from same the period in which the Celtic coins were minted. The AES GRAVE weighs 109.33 grams and was produced around 250 BC, and the value of this coin is confirmed by 4 points on each side.

> *"When Christopher Columbus discovered America in 1492, he had no idea of the huge amount of precious metals to be found there."*

While Roman bronze coins and coin bars have survived the test of time in greater numbers, Roman gold bars are extremely rare. An original from the 1st century AD is not known to exist; however, a marble mould was discovered in the early 1990s in an archeological find on the Magdalensberg near Klagenfurt in Austria. (Picture 3: Roman bar) It is inscribed with the lettering C.CAESARIS.AVG. GERMANICI:IMP:EX:NORIC, which confirms that the gold in the bar would have belonged to the Roman Emperor Caligula. It further says that he was ruler over the Teutons and that the gold came out of the Noricum Province, which today is part of Austria. Caligula ruled over the Roman Empire from 37 to 41 AD, a date which would conform to the age and mould of the bar.

Degussa is also active scientifically in the area of experimental archeology and, together with specialists from the gold-producing industry and accompanied by a film team, produced a similar solid gold bar weighing 3.5kg. This was actually achieved in a two-day experiment. Naturally, the original Roman mould was not used; instead, a replica was manufactured for this purpose.

The Romans not only produced bars out of bronze and gold but also silver. A silver bar in the form of an axe dating from the 4th century AD probably came from the coin-producing town of Trier in Germany. It was produced in the 'OFFICINA (of) SECVNDVS'. That these producers did not do their work carefully is evidenced by a silver clump or lump, which was later forged onto the bar. The original weight of the bar did not conform to Roman standard measurements, but instead of melting it down and recasting it, they simply forged a new piece of silver over the top of the bar. By using the latest techniques in scientific research and proof of authenticity of antique objects, Degussa Goldhandel was able to confirm that the piece of silver added later came from another mould and contained considerably more lead than the main bar.

Mainly coins were produced from these Roman bars. The gold coins, or so-called Aurei, were worth 25 silver Denarii. The Aurei weighed 7.5 grams and the Denarii 3.5 grams. From this, we can draw conclusions about the price of gold and silver in Roman times. The Aureus on exhibition shows the image of Emperor Nero, who ruled the Roman Empire from 54 to 68 AD. The Denarius was produced during the reign of Emperor Tiberius (14 -37 AD). This type of coin is today termed 'tribute penny', because 30 of these silver coins were given to Judas as a reward for the betrayal of Jesus.

With a move forward in time of over 1,000 years, we now go to another continent and to the treasure of the *Atocha*.

When Christopher Columbus discovered America in 1492, he had no idea of the huge amount of precious metals to be found there. Subsequently, the Spanish crown sent a flotilla of around 20 ships each year from Cadiz in Spain to Central America. Upon arrival in the Caribbean, the flotilla was split in two: one part sailed to Veracruz in Mexico and the other to Portobelo in Panama. After they were loaded up with gold and silver, they met up once again in Havanna, Cuba for the return journey.

They wanted to take advantage of the Gulf Stream to the north along the Florida coast and then sail eastwards to Spain. The main problem for these flotillas was pirates and the unpredictable weather. The hurricane season begins at the end of July. In order to protect against pirates, the flotilla employed two heavily armed ships: the *Capitana* was the generic name referring to the ship at the front of the fleet, and the Almirata to the one at the rear. The ship *Atocha*, was built in 1620 in Havanna and was the Almirata of this particular fleet. Heavily armed and secure, it was therefore used by many private individuals as a means of transport.

Picture 2: Gold spirals.

Picture 3: Roman bar.

The flotilla left Spain on 23 March 1622 and reached Portobelo the following day. Pack animals brought gold and silver from Potosi and Lima to Panama. It took nearly two months to load up the *Atocha* and for the cargo to be fully documented. On the 22 July, the *Atocha* sailed to Havanna via Cartagena, where even more gold was loaded onto the ship, along with the first produce from the new silver mine in Santa Fe De Bogota. At the end of August, the *Atocha* reached the harbour in Havanna. Eighty-two soldiers were supposed to protect the cargo and passengers from possible pirate attack.

On 4 September, it was decided due to the good weather to lift anchor and the flotilla of 28 ships headed out to sea. The *Atocha*, due to its heavy load, lay deep in the water and took its place at the end of the flotilla. In the evening, the wind grew stronger, and by morning, the waves were a metre high and all passengers were below decks, seasick and praying. While the first ships in the flotilla managed to escape the worst of the weather by reaching the shelter of the Gulf of Mexico, but those at the end of the convoy were less fortunate and suffered severe damage.

The *Atocha, Santa Margarita* and *Rosario*, plus five small ships, met the full force of the storm. With broken masts, they drifted helplessly towards the reef off the Florida Keys. The *Atocha* was hit by a huge wave, hitting the reef with full force due to its heavy load and immediately sinking. The next day, a passing trading ship saved five of the 265 passengers, who had managed to cling to the mizzen mast for safety.

The Spanish sent numerous teams to recover the lost treasure. The *Atocha* was found in 16 metres of water. Divers who were able to hold their breath for long enough managed to see the wreck, but they could not stay long enough under water to rescue the treasure. The scene of the accident was marked and other wrecks were investigated. The rescue team returned to Havanna along with the 20 flotilla ships that had withstood the storm. As they revisited the site of the wreck with better rescue equipment, a second hurricane erased all traces of the *Atocha* and the wreck could no longer be found.

It was only in the 1980s that the *Atocha* was rediscovered. She was found to have a cargo of 35 tons of silver (901 bars and 255,000 silver coins) and 161 gold objects. At the time, the treasure was estimated to be worth 1 million pesos, which in 1985 equated to $400 million.

The Degussa collection managed to purchase certain bars from the *Atocha* wreck. The heaviest exhibit is a silver bar weighing 33.1 kg and resembling our modern standard bars. It bears different custom stamps and seals of approval, plus a number under which it was listed in the manifest or cargo list of the *Atocha*. The bar also shows that it contains 23.8 carats.

Degussa is particularly proud to own the heaviest gold bar from the *Atocha*. Weighing 2,552 grams, it was originally the reward given to a cartographer who located the

Picture 4: Wreck.

Atocha wreck. It has a fineness of 22 carats and, according to the stamp, was produced in 'SARGOSA', which is known today as Zaragoza in Colombia.

A third bar from the *Santa Margarita* weighing 578.49 grams (Picture 4: Wreck) has neither a customs stamp nor details of its precious metal content. It contains only about 50% gold, with the rest being silver and copper.

The simple manufacture of the bar in an 'earth hollow' also indicates that it was illegally produced and taken on the journey to the old world. It was not allowed for private individuals to transport bars over the ocean without a customs stamp, for which they paid 20% customs tax.

No part of the earth has produced more bars than Asia, and the Degussa collection houses many bars from this continent.

> *"Degussa is particularly proud to own the heaviest gold bar from the Atocha. Weighing 2,552 grams, it was originally the reward given to a cartographer who located the Atocha wreck."*

In the Kingdom of Laos during the 17th century, silver bars with a weight of 220 grams were manufactured, representing 4 Tamlung. The correct name for these bars is not mentioned, but they subsequently became known as 'Tongue of the Tiger' bars in modern literature. It is clear that these bars were processed in a special mould and were subjected to a 'uniform size system'. What the surface area signifies however is not known.

In the year 1985, on the sea bed of the China Sea, the wreck of a ship named the *Geldermalsen*, which belonged to the East India Company, was found. The *Geldermalsen* sank on 3 January 1752 with 112 passengers, 150,000 pieces of china porcelain and 107 gold bars on board. In the spring of 1986, the treasure was auctioned by Christies in London. The Degussa collection was successful in purchasing a gold bar from the wreck weighing 368.95 grams and corresponding to 10 Tael.

One of the latest bars in the Degussa collection comes from the early 20th century. It was produced in China and weighs 205.47 grams. This piece is particularly interesting because one can read much information from the bar.

It was produced between 1920 and 1930 in the Yunnan province. The manufacturing firm was Fu Xing Qing Ji and the manufacturer himself was named Fu Xing. More recently, the name Guan Gong She Kan was stamped over the original official stamp.

This is only a small sample of the Asian bars and shows clearly the variety that was available and also illustrates how exciting this research area really is.

It is also in the area of numismatics that Asia is an important source of relics. The Degussa collection houses different coins from many rulers. In this exhibition setting, we will show you pieces from the Ch´ing dynasty (1644 – 1911). (Picture 5: China coins). These were produced upon the orders of Emperor Kao Tsung Shun Huang Ti, who ruled between 1736 and 1795, the governing period known as Ch´ien-lung. The bronze coins were produced in different cities; for example, Kueilin in Kuangsi carried on the reverse side the name of the town and an inscription, whereby the head depicted that it was a valid method of payment of the governing period (Ch´ien-lung t´ung-pao).

Picture 5: China coins.

Wolfgang Wrzesniok-Roßbach, Chief Executive Officer, Degussa Group

Wolfgang was hired as CEO for the newly founded Degussa Goldhandel GmbH in November 2011. Before setting up the new company under that well-known historic brand name, he worked for nearly seven years at Heraeus as Head of Sales and Marketing, and over 20 years at Dresdner Bank in Frankfurt, at the end as Head of Precious Metals and Commodities Trading.

Within 18 months, Degussa, which is owned by one of the wealthiest German families, has become one of the leading European precious metal trading companies for physical investment in metal. The company buys and sells investment products through a rapidly growing branch network in Germany and Switzerland, and through a very active online shop. During the course of this year, the company has also expanded into the purchase of gold scrap and the numismatics business.

The company has now more than 70 employees and, at the beginning of July 2013, took over the smaller German gold trading company SilviOr, a company that specialises in the storage of precious metals for customers.

Robert Eberlein, Department of Numismatics, Degussa Group

Robert started working for Degussa in July 2012 as an expert in Numismatics. Prior to joining Degussa, he spent one year as a specialist in coins of the modern era at Gorny and Mosch in Munich. In 2011, Robert finished university with a double master's degree from the University of Augsburg, with emphasis on ancient, recent and most recent history, classical archaeology and philology.

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery service through our partnership with and equity participation in Argor-Heraeus
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 207 444 9075
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

This advertisement has been created and published by Commerzbank AG, London Branch, a firm authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Services Authority (FSA). Details on the extent of our regulation by the FSA are available from us on request. Copyright © Commerzbank AG 2013.

COMMERZBANK
The bank at your side

Recycle, Refine, Remanufacture

By Robert G. Surash, Process Chemist, Rochester Silver Works, LLC (RSW)

Three simple words: 'Recycle, Refine, Remanufacture' was the major theme that process chemist Robert G. Surash of Rochester Silver Works, LLC (RSW) presented at the 37th IPMI June 2013 Conference in Phoenix, Arizona. Robert's presentation focused on these three processes and the connectivity to RSW's operations that culminates in the production of high-grade (ACS-certified) invariant-quality silver nitrate.

RSW is the former film-based recycling, silver-based refining and silver nitrate remanufacturing departmental operations of Eastman Kodak Company (EKC). These EKC's assets were purchased by private owners on 1 October 2011, and the private owners also own Technic Inc. Since its inception in 1944, Technic Inc. has established a global reputation for technical excellence in the electro-deposition of precious metals and has grown to be a global leader in specialty chemicals, surface finishing equipment, engineered powders and flakes, and analytical control tools.

RSW specialises in the wholesale recycling and refining of silver and photographic film products, and the remanufacturing of high-grade invariant-quality silver nitrate and some other small-scale silver salt derivatives. RSW is "88 years plus one" old. RSW celebrated one year in age as a new company on 1 October 2012, but if one takes into account the age of some of the buildings and operations that RSW acquired, it dates back to the 1920s (specifically 1923). The 1920s was the time frame during which EKC initiated large-scale recycling, refining and remanufacturing. RSW is "pushing" 100 years old when it comes to recycling, refining and remanufacturing of silver and that EKC s significantly ahead of many other companies from a recycling or environmentally green initiative perspective.

Numerous photographs were displayed during the presentation. Below is a picture of the Building 143 (silver nitrate), described by Robert as the "Jewel of RSW".

Picture 1: Building 143 (Silver Nitrate)

The capacities of RSW's assets are amongst the largest in the world. Historically, annual capacities of the recycling, refining and remanufacturing operations: approximately 30 million pounds of high-grade polyethylene terephthalate plastic recycled, approximately 30 million tz silver as 4-nine or 99.99% silver refined and approximately 3.5 million kg silver nitrate remanufactured.

RSW is located in the heart of Eastman Business Park (EBP), a 1,200-acre technology centre and industrial complex located near Lake Ontario in Rochester, New York. EBP used to be referred to as Kodak Park and still is one of the world's largest manufacturing complexes, and is currently home to more than 35 companies with more than 1.5 million square feet of available space for manufacturing, laboratory, office and warehouse operations. In addition, it offers over 300 acres of prime industrial (M1) developable land. EBP is a self-sufficient manufacturing facility with a highly efficient infrastructure, including major utilities such as various grades of water quality or steam, electricity and on-site waste water treatment, to name a few. RSW occupies approximately 10 acres of land and 150,000 square feet of buildings within EBP.

RSW have retained all 55 highly skilled former EKC employees and all of EKC's film recycling, silver refining and silver nitrate remanufacturing business unit operations, and has expanded its workforce since 1 October 2011 with the addition of a chemical engineer, a sales/marketing director, four additional full-time production personnel and a 10 to 15 person flexible contractor force. RSW's vision is to be a "formidable force for the foreseeable future" with regard to recycling, refining and remanufacturing as a function of Ag and Au. It is hoped that this can be achieved by exploitation of current capabilities, acquisition of new equipment and the development of new products, i.e. alternative plastics, but especially silver derivatives in wholesale quantities beyond silver nitrate.

> *"For the recycling operation, the input material is primarily post-manufacturing or post-consumer film and is film base independent, and could be silver or non-silver bearing in nature."*

> *"EBP is currently home to more than 35 companies and offers more than 1.5 million square feet of available space for manufacturing, laboratory, office and warehouse operations"*

RSW's operations revolve around three major processes; recycling, refining and remanufacturing.

For the recycling operation, the input material is primarily post-manufacturing or post-consumer film (medical, dental or industrial x-rays, graphics, printed circuit board, motion movie, microfilm, microfiche, etc.) and is film base independent (analog or laser printed), and could be silver or non-silver bearing in nature. The process capability of the recycling operation is that it is an aqueous-based multifunctional batch highly automated chemical wash process. In the presence of numerous chemicals, high-shear conditions within the washing vessel and as a function of time, temperature and critical film to water ratios, a high-grade polyethylene terephthalate and near silver free plastic is produced. A 3-4 ton batch of film is added to one of the specially designed washers, production personnel input the weight, select a wash programme from the computer control system and "walk away" for five to 10 hours. RSW's current capacity is in the vicinity of 25-30 million pounds a year and, based on market research, this makes RSW one of the three top volume film washers in North America.

Picture 2: Incoming size-reduced photographic film base being inventoried prior to processing.

For the refining operation, the input material is primarily crude silver-based recycle streams from various photographic and non-photographic-based processes (slurry, muds-solids, filter-press cakes, ash, sweeps, flake, dore, etc.). The sub-unit operations process capabilities of RSW's refining operations are the uniqueness of RSW as compared to other refiners. These sub-unit operations include water treatment, calcination, smelting, metal hydroxide formation, electrolysis and finishing furnace melting. RSW operates a water treatment process that can treat via coagulation, flocculation, settling in large basins and filtration over 365 million gallons per year. RSW can calcinate 5-6 million pounds a year of solids with approximately 50% moisture and produce via smelting and electrolysis approximately 30 million tz a year to 4-nine or 99.99% silver purity. This is a particular area in which RSW will need to exploit current capabilities and fill existing capacity via expansion (equipment acquisition).

Picture 3: RSW's calcinator.

> *"For the remanufacturing operation, the input material is primarily a combination of recovered and purchased silver and nitric acid."*

For the remanufacturing operation, the input material is primarily a combination of recovered and purchased silver and nitric acid. There are multiple photographic/non-photographic uses of RSW nitrate: traditional and digital photo products to anti-microbial, catalyst, electronic, mirror, metal powders, batteries, etc. RSW's silver nitrate process is classified as a "continuous and consistent high quality" nitration facility, with the three-stage nitration-purification sub-unit operation identified as a 5-6 Sigma Quality process. Process control and verification are used versus product testing to "release" product for sale. EKC have developed a proprietary process-product verification tool defined as the split-ratio model for photographic grade silver nitrate in the 1990s. This model was the result of numerous process control R&D programmes that were imbedded as part of the lean manufacturing initiatives assigned to the overall design of the new silver nitrate process. The model takes into account various process parameters prior to the crystallisation process and couples these with many other set points as a function of the equilibrium chemistries of key impurities. The result is that the model predicts product impurity levels or the impurity split of key impurities associated with the mother liquor of the crystallisation process. The quality of RSW product nitrate meets or exceeds ACS/USP specifications and it is his firm belief, based on more than 33 years' experience, that RSW not only produces the highest consistent quality invariant grade silver nitrate, but is also the largest single-source silver nitrate manufacturer in the world.

Picture 4: RSW pelletised silver nitrate product.

In conclusion for all its history, process capabilities and powerful automation, the most invaluable assets of RSW's recycling, refining and remanufacturing processes are its people.

Picture 5: Photograph taken on 1 October 2012 of RSW personnel at RSW's first-year celebration as a company.

Three simple words 'recycle, refine and remanufacture' are connected to one another at RSW and that they culminate in the production of high-quality invariant grade (ACS-certified) silver nitrate. Mr Surash's presentation rationalised how these three words are not only connected to each other at RSW, but how they link RSW to the silver industry or as mentioned early on, how RSW takes "precious metal scrap to premium industrial materials."

Robert G. Surash, Process Chemist, Rochester Silver Works acquired a Bachelor's degree in Chemistry from Harpur College of Arts and Sciences at Binghamton University. He has spent the majority of his career with industrial-scale silver-based manufacturing processes. He started at Eastman Kodak Company in a manufacturing developmental laboratory with special emphasis on fire assay testing and developed into Kodak's on-site technical expert for the operations of silver refining, film recycling and silver nitrate manufacturing. He is a certified Six Sigma Black Belt and is the holder of three US patents involving photographic film recycling and methods for treating and recovery metals associated with both domestic and industrial waste waters.

Rand Refinery is the world's largest single site gold refining and smelting complex. Our diverse range of industry leading services includes smelting, refining and fabrication. With an extensive global network, Rand Refinery offers world-class state of the art logistics services for the transport of precious metals via land, sea and air. As the only LBMA referee in the southern hemisphere, we are able to deliver ethical, responsible and cost-effective solutions to a growing list of global clients. So whatever your gold related business needs are, you can rest assured that we have the experience and expertise required to turn your vision into reality.

RAND REFINERY

STRIVING FOR PERFECTION

Rand Refinery (Pty) Ltd, Refinery Road, Industries West, Germiston, 1401 | P.O. Box 565, Germiston, 1400, South Africa

Tel: +27 (0)11 418 9000 | Fax: +27 (0)11 418 9231 | Email: gold@gold.co.za | www.randrefinery.com

The Royal Mint

BULLION

Sovereign . Britannia . Vault

www.royalmint.com/bullion

The Outlook for Silver Industrial Demand

by Philip Newman, Director, Metals Focus

Silver industrial demand has gone through a difficult period in recent years. The 2008 global recession and subsequent sluggish economic recovery have impacted end-use demand in a number of key industrial sectors. In addition, high and volatile silver prices have incentivised manufacturers to thrift on the use of silver in a range of applications. While the economic impact on industrial offtake is cyclical in nature, thrifting in practice is rarely reversed and effectively results in demand destruction.

In this article, however, we make the case for why silver industrial offtake appears to have turned the corner in 2013. As we explain, two factors underpin much of this view. First, a number of sectors are now following the global economy on the road to recovery. Second, the weaker silver price (at the time of writing) means that thrifting should be far less of a threat to industrial demand than was the case even at the start of this year.

Photovoltaics

Declining inventories across the supply chain now feeding through into higher silver powder and paste demand.

One of the most significant end-use industrial markets for silver is photovoltaics (PVs), the key starting point for which is silver powder. The strength this sector enjoyed through to late 2011 accounted for the significant ramp-up in powder trade at that time. In sharp contrast, late 2011 through to 2012 saw a marked downturn, following what turned out to be the build-up in 2011 of both excess production capacity and inventories of finished cells, principally in China.[1] Aggressive thrifting by the industry, following the spike in silver prices to $50/oz in 2011, led to further downward pressure on silver offtake.

Although at first sight it may appear counterintuitive, the speed with which silver has been thrifted in recent years could well have preserved the long-term use of the metal in PVs. Put another way, the rate of thrifting has been so great that the potential economic benefits of continuing to reduce silver content at the same rate, taking into account also the weaker price, no longer appears to justify the RnD costs of doing so. Ultimately, it is our understanding that while the industry continues to reduce silver loadings, it now does so at a far slower rate.

Looking ahead, our field research also paints a sanguine picture for silver PV offtake in the near to medium term. Our understanding is that much of the finished cell inventory overhang that was in place has been depleted and that more 'normal' levels are now emerging across the supply chain. Coupled with installations keeping to healthy rates and slower thrifting, this is now starting to feed through to higher demand for silver pastes (and by implication, silver powder).

Figure 1: Silver Thrifting in Photovoltaics

	Silver per GW Index, 2011=100	Installations GW
2011	100.0	30.4
2012	78.3	31.1
2013	68.7	28.0
2014	65.1	30.0
2015	60.2	36.5
2016	56.6	41.0

Source: Metals Focus, European Photovoltaic Industry Association

To shed some light on the potential longer-term outlook of silver PV demand, we look at forecasts for global installations, provided by the European Photovoltaic Industry Association. Overall, this information highlights that, over the next few years, global installations will comfortably exceed those realised in 2011. Even so, we believe that the use of silver will fall short of volumes achieved back then. In other words, it is misleading to benchmark future PV silver demand against 2011, with silver demand unlikely to recapture those levels. Instead, it is more appropriate to use 2013, with silver offtake likely to reach 35-40 Moz, as a more realistic benchmark in assessing future silver demand in this application.

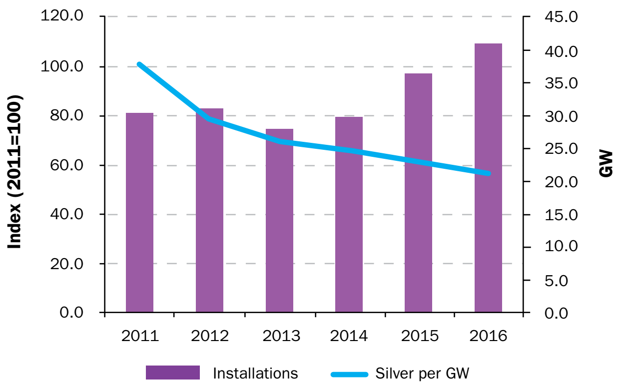
Figure 2: Global Photovoltaics Installations

	2010	2011	2012	2013F	2014F	2015F
Installations (GW)	18.0	30.4	31.1	28.0	30.0	36.5

Source: European Photovoltaic Industry Association

1 In terms of the global PV supply chain, China dominates the production of PV cells, Europe accounts for the bulk of installations, while the US accounts for the bulk of global silver powder and paste offtake.

Figure 3: Silver Thrifting & Global Installations



Source: Metals Focus, European Photovoltaic Industry Association

Ethylene Oxide Catalysts

Near uninterrupted growth over the past 30 to 40 years, further gains expected over the short to medium term.

The ethylene oxide (EO) sector can often be overlooked in terms of its importance to the global silver market. Even though annual demand is relatively modest and the industry has not seen a tremendous upturn similar to that in photovoltaics, over the past 30 to 40 years, it has enjoyed near uninterrupted growth. In today's market, new silver EO demand is estimated in the region of 5-6 Moz per annum, compared with a lower level of around 3-4 Moz per annum over the past decade.

The rise can be explained for two reasons. First, to meet growing demand for a range of consumer and industrial products, newly installed EO plants are, on average, increasing in size. Second, the silver content per installation, or capacity expansion, is also rising. In other words, in spite of the uptrend in silver prices over the past decade, there has been little sign of thrifting on silver usage in EO catalysts. As such, the average silver content per plant has risen dramatically, from around 0.25 Moz during the 1970s to around 2-3 Moz per plant in 2013. This stands in stark contrast to many other areas of silver industrial demand, where thrifting has often had a marked impact on silver consumption.

One of the interesting points about the EO market is the almost clear geographical separation between the various links in the supply chain. The first stage involves the production of silver oxide, which is dominated by the United States. In contrast, the profile of where the plants are installed is far more dispersed. During the 1980s and 1990s, global EO installations were dominated by the Americas and Europe. However, over the last 10 to 15 years, the landscape has changed noticeably, with new installations now concentrated in South and East Asia, and the Middle East. Drilling down further, just two countries now stand out, namely China, where EO installations first ramped up in 2004, and Saudi Arabia, which saw a jump in EO demand at the turn of the millennium.

The relatively modest annual growth in new silver demand, of around 5-6% per annum, has given rise to a substantial installed capacity of silver in EO plants on a global basis. Using historic data on installations provided by PCI Global and factoring in our estimates for the silver content per plant, we believe that the global installed capacity of silver is currently in the region of 170 Moz. This compares with around 100 Moz at the turn of the millennium. Looking ahead, given the expected growth in new EO capacity, it appears as though, within the next four to five years, we are likely to see global installed capacity surpass 200 Moz.

> *“In today's market, new silver EO demand is estimated in the region of 5-6 Moz per annum, compared with a lower level of around 3-4 Moz per annum over the past decade.”*

This gives rise to another important feature of the EO market, namely the change-out of spent catalysts, to the benefit of both recyclers and also the leasing market. On average, EO plants are changed, or recycled, every two to three years. That said, during an economic downturn, change-outs may be brought forward, so as to take advantage of periods of relatively quiet end-use demand. In contrast, during a time of heightened demand, a plant may be run for an extended period, even though this will see the efficiency of the installed catalyst (and therefore its productivity) deteriorate. That aside, on average, around 20-30 Moz of silver is reclaimed every year, equivalent to around 12-18% of the installed base. To put this into context, this compares with new demand, as noted earlier, of around 4-6 Moz per annum.

Other Applications

Global demand for silver contacts is expected to improve, but the outlook for brazing alloys is more uncertain.

A key area of industrial demand is the use of silver in the electrical contacts industry, which includes the use of multi-layer ceramic capacitors (MLCCs). Although the outlook for silver demand in MLCCs remains uncertain, given the potential for silver:palladium to lose further market share to base metal capacitors, the overall outlook for silver contacts in electronics is more bullish. This view is premised on the outlook for several key end-markets and, in particular, for automotive demand.

Last year, the production of light duty vehicles (LDVs) achieved a new record high, rising by 6% to around 82 million units. In the next few years, the market is slated to grow in the region of 4-5% per annum. In our view, the use of silver contacts across the automotive industry should achieve higher year-on-year gains, compared with the growth in vehicle production. In essence, we should see a growing use of electrical devices in mid-range LDVs, as applications that were once the preserve of high-end models filter down to the mass market. In our view, this trend will offset both thrifting and substitution efforts (the latter being in favour of base metals).

Separately, we are more wary about the prospects for silver brazing alloy demand. A key external determinant is the global outlook for housing and construction. On the one hand, the global economy is gradually improving, notably in the US, with China expected to avoid a hard landing. While this may argue for stronger brazing demand, a growing risk for silver demand, on the other hand, is substitution in the air conditioner market, with copper being replaced with aluminium. We have to remember that the use of silver in new units is trivial. However, in the aftermarket, copper is typically replaced with silver:copper, whereas the precious metal is not used as a replacement for aluminium.

> *“A key area of industrial demand is the use of silver in the electrical contacts industry, which includes the use of multi-layer ceramic capacitors (MLCCs).”*

Understanding Trade Flows

Backing up field research – looking for signs of an upturn in the trade flows.

As discussed above, our field research indicates that global industrial demand has turned the corner in 2013. In contrast, the picture emerging from trade statistics, often used to corroborate (or otherwise) field analysis, has been less clear cut. To understand industrial demand, the trade in silver powders, a key intermediate product, often proves a useful starting point. Taken at face value, though, the table below offers a mixed picture.

Figure 4: Silver Powder Imports (Moz)

Imports (Moz)	Jan - May 2011	Jan - May 2012	Jan - May 2013	YoY %
South Korea	5.8	5.5	7.3	33%
Taiwan	4.4	7.9	5.5	-29%
China/Hong Kong	9.5	7.1	4.7	-34%

Source: GTIS

The import data highlights some of the world's largest consumers of silver powders, an important share of which is used to produce, as we have discussed, silver pastes. Given that Korea is now a major paste manufacturer, this explains the jump in Korean powder imports, which has benefited from both healthy market share gains and also improved demand from the flat screen industry (for touch screens across a range of devices). In contrast, the sharp fall in Taiwanese imports must be seen in the context of a record import total the year before, due to the relocation of some PV cell manufacturing from mainland China. More important, in our view, is the hefty drop in combined Chinese/ Hong Kong silver powder imports. However, we do not believe this reflects the state of Chinese demand. Instead, we understand that domestic silver powder production has risen this year, partially displacing inbound shipments.

Figure 5: Silver Powder Exports (Moz)

Imports (Moz)	Jan - May 2011	Jan - May 2012	Jan - May 2013	YoY %
Japan	9.5	10.8	12.7	18%
United States	13.0	8.6	8.1	-6%

Source: GTIS

Turning to powder exports, the headline data shown in the table initially appears inconclusive. The upturn in Japanese exports reflects the ongoing recovery from its recent natural disasters, together with technology-driven export gains, especially in the US. With regards to US exports, the decline appears surprising, given our feedback of an overall upturn in powder demand. However, two points are worth noting. First, an increasing portion of US silver powder offtake is being consumed locally, rather than being exported. Second, the US may have lost market share to Korea this year, hence the dramatic rise in Korea's powder imports.

New Industrial Applications

Little sign of a 'new PV' emerging over the next two to three years; over the short to medium term, the current raft of new uses are unlikely to consume a significant quantity of silver.

The last area to touch on concerns new uses, for which there has always been a great deal of debate, in particular, about their impact on industrial demand. The only 'new' use, in our view, to have any material impact in this way has been PV. Although this application has existed since the 1970s, it was only the more recent change in environmental legislation that fundamentally altered the landscape for PV, combined with the fact that average silver loadings (per cell) remained high, until quite recently that is.

This brings us to the key point about so many new uses over the past decade. Several of these have achieved commercial success, in terms of their ability to exploit silver's properties, with the medical sector a notably beneficiary. However, a common challenge (in terms of the silver market) has been the trivial level of silver offtake that has often been achieved on a per unit basis. As such, the impact on silver demand of many new applications, ranging from wood preservatives to biocides, has so far been extremely modest.

However, this does not necessarily point to a bleak demand profile in the coming years and, in fact, in our view, this misses a key point.

Much of the expected growth will come from new developments in existing markets. We have already touched upon new electrical uses in the auto sector, especially for silver contacts. To this, we should add the surge in demand for flat panel devices, notably touch screen devices, which are currently enjoying tremendous growth. Neither might be termed 'new uses' in the traditional sense, but each is clearly having a positive impact on the industrial silver market.

Philip Newman, Director, Metals Focus

Prior to forming Metals Focus with Nikos Kavalis and Charles de Meester, Philip was Research Director at Thomson Reuters GFMS, formerly GFMS, where he spent 19 years. During his time there, Philip was responsible for precious metals research in the United States, parts of the Middle East and the United Kingdom. Philip received a BSc (Hons) Economics from the University of Surrey.

About Metals Focus

Metals Focus specialises in research into the global gold, silver, platinum and palladium markets, producing regular forecasts and bespoke consultancy. The company is owned by Philip Newman, Nikos Kavalis and Charles de Meester. The consultancy's work is underpinned by an extensive programme of travel to generate 'bottom-up' research, covering the supply chain from mine to the market.

And they're at the core of our business.

Highly ranked by all major credit agencies and one of the few banks to be rated Aa1 by Moody's[1], TD is considered one of the safest financial institutions in the world[2]. Our global team of professionals applies deep market knowledge to create value and opportunity. TD clients benefit from tailor-made solutions as well as single point access to the breadth of TD capabilities and services. Put our team to work for you.

Contact one of our global offices:

New York
T: +1 212 827 7866
gpm.ny@tdsecurities.com

London, UK
T: +44 (0) 20 7997 1932
gpm.london@tdsecurities.com

Singapore
T: +65 6500 8022
gpm.singapore@tdsecurities.com

RATED

The Safest Bank in North America and one of the Safest Banks in the World
(Global Finance Magazine, 2013)

One of The World's Strongest Banks
(Bloomberg, 2013)

Best Bank in Canada
(Euromoney magazine, 2012)

1. Ratings on long term debt (deposits) of The Toronto-Dominion Bank, as at April 30, 2013. Credit ratings are not recommendations to purchase, sell, or hold a financial obligation inasmuch as they do not comment on market price or suitability for a particular investor. Ratings are subject to revision or withdrawal at any time by the rating organization. 2. Global Finance Magazine, February 2013. TD Securities is a trademark of The Toronto-Dominion Bank representing TD Securities Inc., TD Securities (USA) LLC, TD Securities Limited and certain corporate and investment banking activities of The Toronto-Dominion Bank. ®/The TD logo and other trade-marks are the property of The Toronto-Dominion Bank or a wholly-owned subsidiary, in Canada and/or other countries.

Managing Post-Trade Risk in Precious Metals Portfolios

By Susan Hinko, Head of Industry Relations and Mattias Palm, Business Manager Commodities, TriOptima

Portfolio compression, also known as multilateral early termination, of OTC derivative portfolios has arrived in the precious metals derivatives market and is gaining traction. In March 2013, TriOptima completed the first portfolio compression cycle for precious metals forwards and swaps, terminating $7.2 billion in notional principal outstandings. Six institutions were able to reduce their gross positions in gold and silver, unlocking regulatory capital and reducing collateral requirements. Additional precious metals cycles are scheduled for later this year.

Managing capital and collateral resources efficiently is especially important in the new regulatory environment, and the commodities market has responded with interest to the expansion of portfolio compression to precious metals trades. The incentive to achieve greater reductions in precious metals forwards and swaps is strong, especially as new capital rules and margin requirements are implemented.

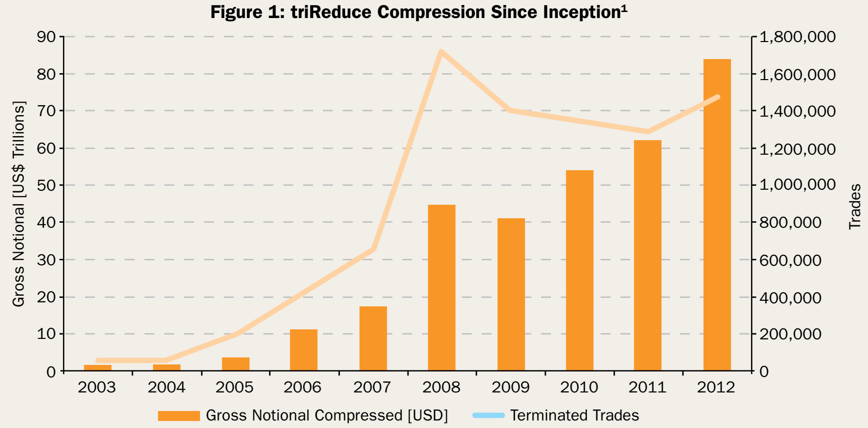
In a portfolio compression exercise, participants are able to tear up their existing trades at their own mid mark-to-market valuations and avoid the difficult negotiation process of bilateral termination. Multilateral terminations leverage the expanded number of participants and result in increased numbers of terminated trades. While individual institutions benefit from a more efficient use of capital and collateral, reducing outstanding notional also contributes to the overall stability of the financial markets.

Since its introduction in 2003, first for interest rate swaps (IRS), then for credit default swaps (CDS), and finally for commodity trades in energy and precious metals, portfolio compression has contributed significantly to reducing the number of transactions and the notional outstandings in the OTC derivatives markets. In 2008 alone, compression in the CDS market eliminated 50% of the notional outstandings globally after regulators focused on inefficiencies in the CDS market. Since then, the expansion of portfolio compression to cleared IRS trades in LCH.Clearnet's SwapClear service has dramatically reduced the IRS swaps outstanding.

Through June 2013, $353 trillion has been eliminated from swap portfolios globally since compression was first introduced 10 years ago. The ISDA (International Swaps and Derivatives Association) recently analysed the contribution that portfolio compression has made to controlling the growth of notional outstandings, one of the goals of global regulators. In its *OTC Derivatives Market Analysis Year End 2012*, ISDA noted that, over the last five years, "…portfolio compression has significantly reduced notional amounts outstanding by 25% or more". The ISDA concluded that "the industry has worked very hard using tools such as netting, collateralization, portfolio compression, and central clearing to reduce risks in the system in accordance with G-20 goals."

The graph below indicates the growth of portfolio compression from 2003 through 2012. The ISDA *Year End Market Analysis* reports that the total notional compressed across all transaction types in 2012 was $48.7 trillion and that $214.3 trillion notional has been compressed in the five-year period through 2012.

Figure 1: triReduce Compression Since Inception[1]



[1] IRS and CDS Compression statistics
Source: TriOptima

How Portfolio Compression/ Multilateral Termination Works

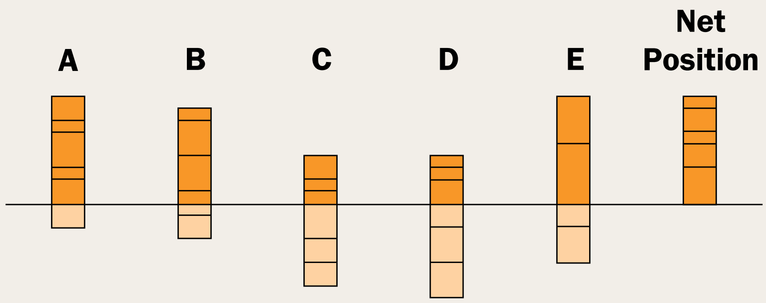
Portfolio compression is a powerful tool for eliminating risk that amplifies results beyond the bilateral relationship. It is much more effective than bilateral attempts at termination because it has access to a greater pool of trades that can be eliminated while still respecting the constraints preferred by participants. More trades and more participants yield proportionately better results.

Market participants that have a significant two-way flow of OTC derivative trades build up an inventory of trades that are not necessary to maintain the firm's net risk position. By joining a portfolio compression cycle, firms can eliminate trades they don't need for accounting, regulatory or risk purposes, and achieve significant benefits. Without compression, a firm will have a portfolio of transactions against a series of counterparties as shown in Figure 2 below.

> *"Market participants that have a significant two-way flow of OTC derivative trades build up an inventory of trades that are not necessary to maintain the firm's net risk position."*

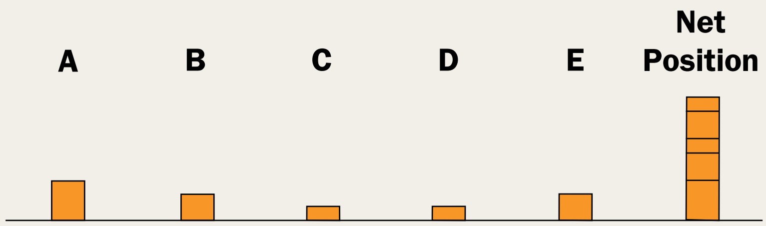
While there is some potential to reduce the number of trades outstanding while maintaining the net position through bilateral early termination, this is very time-consuming and very difficult to achieve in scale. By participating in a multilateral compression cycle, significant numbers of trades can be eliminated while the net risk position does not change.

Figure 2: Consider a Portfolio with Five Counterparties



Source: TriOptima

Figure 3: Multilateral Compression Potential

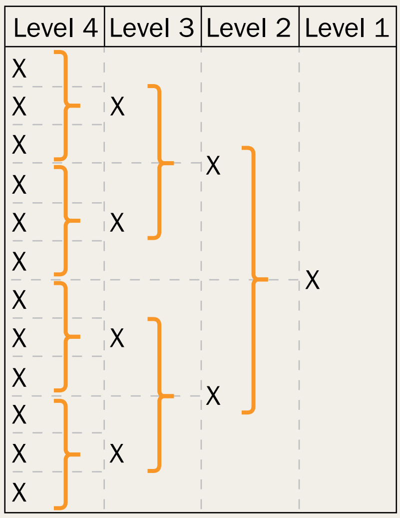


Source: TriOptima

Each participant in a compression cycle identifies and submits the trades they are willing to terminate at their own mark-to-market values. Once these trades have been matched against the other side of the original transaction, a proposal of transactions that can be terminated while maintaining a firm's predefined tolerances for changes in counterparty credit exposure, market risk and cash payments is generated. Each institution reviews the proposal and submits its acceptance. When all cycle participants have accepted the proposal, the proposal is legally binding for all parties, and transactions are terminated and eliminated from the books. As a result, the terminated trades will no longer incur costs, risks and capital charges. This process typically includes both a 'dress rehearsal' and then a 'live run' a few days later.

One of the key tolerances that a firm sets is the delta tolerance. It can be defined on up to four different levels as illustrated below, where each level protects against different kinds of yield curve movements in the time buckets defined by each participant as designated by X. The tolerance is symmetrical, it will allow for the delta to either increase or decrease within the defined

Figure 4: Setting Delta Tolerances



Source: TriOptima

tolerance value by the same amount.
Another important tolerance is the counterparty exposure tolerance, which can be set asymmetrically to constrain or allow positive or negative movements in mark-to-market exposure versus each counterparty participating in the cycle. So, for example, you might be willing to allow counterparty credit exposure to increase by $5 million or decrease by $5 million versus counterparty A, but only be willing to see a decrease by $5 million and no increase versus counterparty B.

Figure 5: Counterparty risk before triReduce cycle

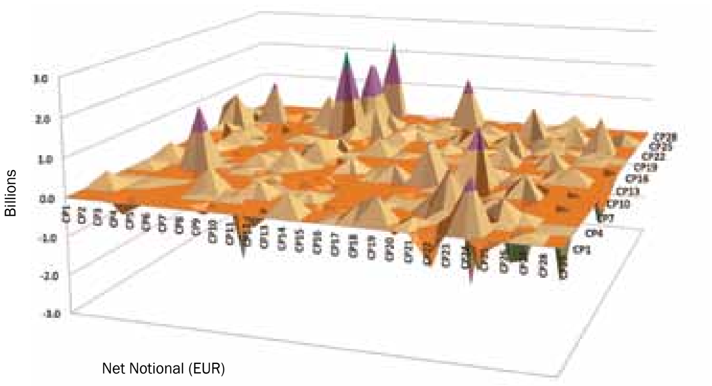
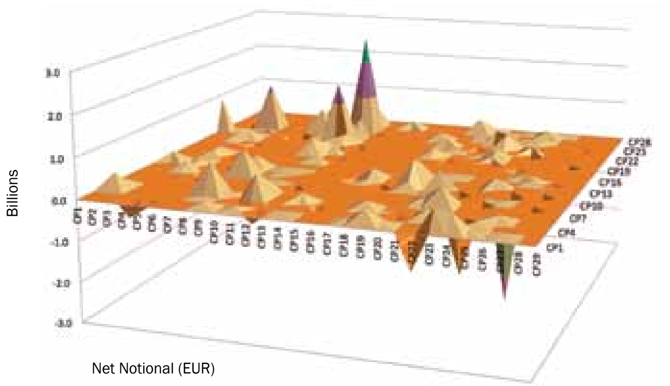


Figure 6: Counterparty risk after triReduce cycle



Source: TriOptima

With the renewed focus on credit risk management, firms and regulators have underscored the importance of improving exposure management. Regular participation in compression cycles reduces counterparty exposures overall; but by utilising the counterparty tolerances, participants can also smooth out the peaks and troughs in remaining exposures, resulting in a more efficient distribution among counterparties, as illustrated below. This capability is another contributing factor to reducing systemic risk as well.

The Benefits of Portfolio Compression

Getting rid of unnecessary transaction inventory that does not contribute to the desired market risk position can yield many benefits, especially for trades where the underlying prices are high, credit lines are constrained, collateral demands have escalated or capital is in demand as is the case in precious metals trading.

- **Capital Benefits**
  Terminating trades reduces regulatory and economic capital charges. For firms under IFRS accounting rules, which require gross positive and negative mark-to-market values on the balance sheet, reducing trade inventory will reduce the balance sheet consumption.

- **Credit Exposure Management**
  With reduced credit exposures, credit lines can be freed up to support new business opportunities. In addition, collateral volatility will be reduced by managing down counterparty exposures that cause collateral calls to be triggered and incur capital costs under Basel III. Internal charges for capital will also be reduced to the benefit of individual, well-managed businesses. Shrinking portfolios will show a reduction in potential future exposure (PFE) over time, and bilateral risk can be managed effectively using asymmetric counterparty exposure tolerances.

- **Reduced Operational Risk and Costs**
  The operational costs and risk associated with maintaining an OTC derivatives portfolio are directly proportional to the number of trades in the portfolio. If there are fewer trades, there are fewer payment and fixing events, fewer nostro breaks, fewer processing errors and less time spent on resolving errors or erroneous payments. With fewer trades, there is also more control over the portfolio. Participating in a portfolio compression cycle will involve a data scrub for all submitted trades so that existing errors can be identified before they grow into major losses.

- **More Efficient IT Processing**
  In a business environment where cost containment is a key consideration, smaller trade portfolios require less system resources and postpone the need to increase or upgrade capacity. Moreover, IT processes can run quicker batch processes; and system response times are reduced.

Portfolio Compression for Precious Metals

While some benefits are particularly relevant to a financial institution, most of the advantages of reducing portfolios in precious metals can be enjoyed by any firm. In the current economic and regulatory environment, managing counterparty risk, reducing operational risk and costs, deploying capital efficiently and maximising IT processes are important goals for everyone.

Although portfolio compression is just beginning to gain traction in the precious metals market, its potential is appreciated by market participants. TriOptima has scheduled the next precious metals compression cycle for October this year, and TriOptima anticipates executing three to four precious metals cycles per year going forward. As the new US and European regulations come into effect, there is a greater need to capture the benefits of compression, especially the reduction in counterparty credit risk, the more efficient deployment of capital and the reduced operational risk and costs that compression delivers.

Mattias Palm, Business Manager, TriOptima

Mattias Palm is responsible for managing TriOptima's business in the commodities markets, which includes the portfolio compression service triReduce Commodities, as well as the portfolio reconciliation service triResolve.

Prior to joining TriOptima in 2011, Mattias was EVP, Head of Markets & Sales, at Navita Systems (now part of Brady plc.). This role included executive responsibility for sales, marketing, and product strategy, as well as hands-on responsibility for product management.

During his 17 years in the commodity trading and risk management sector, he has also worked at NASDAQ OMX as product manager, and in principal consultant roles at PA Consulting Group and Capgemini.

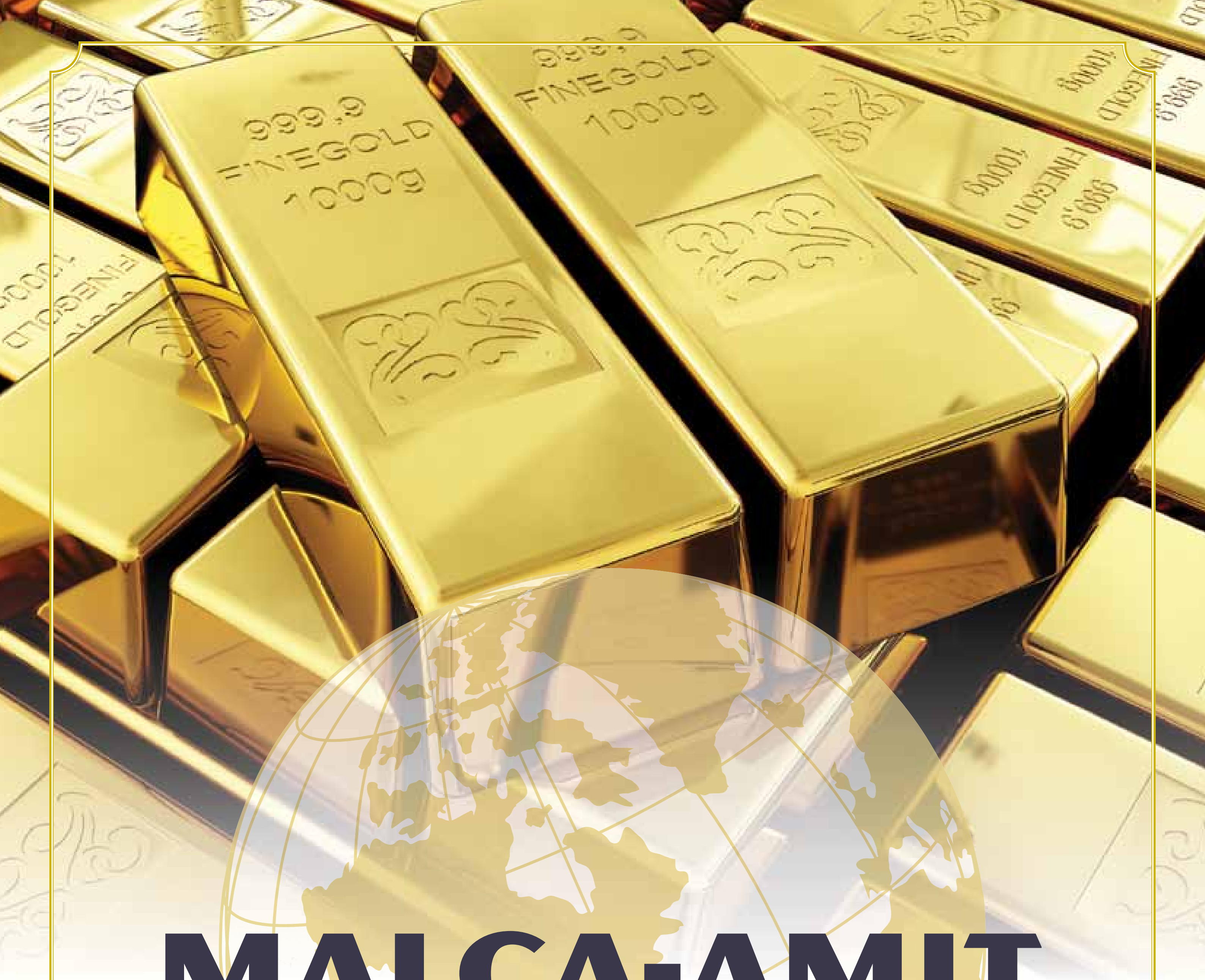
Mattias holds a MSc in Electrical Engineering & Computer Science from the Royal Institute of Technology in Stockholm, Sweden.

Susan Hinko, Head of Industry Relations, TriOptima.

Susan is responsible for TriOptima's corporate communications and industry relations globally.

Prior to joining TriOptima, she worked at the International Swaps and Derivatives Association (ISDA) as head of policy for the Americas. Susan also served as the administrative officer of several investment banking departments at Lodestar, Merrill Lynch M&A, and Goldman Sachs Real Estate. She started her career on Wall Street in the cash management area at Chase Bank and Merrill Lynch treasury.

Susan holds a BA from Skidmore College, an MA from the University of Michigan and an MBA from Columbia University.

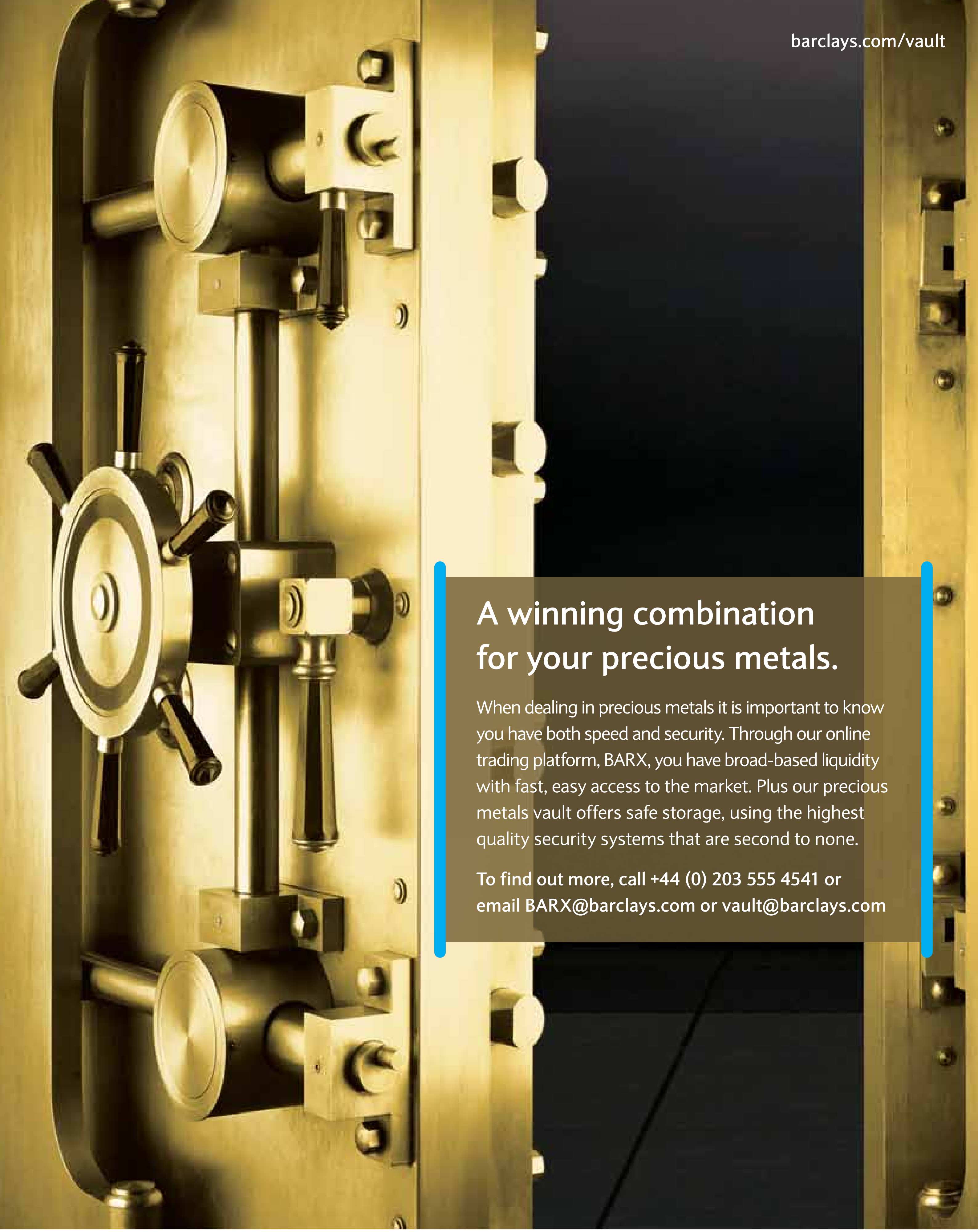


MALCA-AMIT

SPECIALISTS IN SECURE LOGISTICS AND VAULTING, LBMA APPROVED WEIGHERS, VAULT NETWORKS IN LONDON, NEW YORK, SINGAPORE, HONG KONG, ZURICH AND GROWING… SO GROW WITH US…

For information or enquiries please contact
info.bullion@malca-amit.com
or call our UK office on +44 2088149850
www.malcaamit.com

MALCA-AMIT
DELIVERING ABSOLUTE
PEACE OF MIND



BARCLAYS

Issued by Barclays Bank PLC, authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. Barclays is a member of the London Stock Exchange. Barclays Bank PLC is registered in England No. 1026167. Registered Office: 1 Churchill Place, London E14 5HP.

Regulation Update

– Responsible Gold Programme

By Ruth Crowell, Deputy Chief Executive, LBMA

After three years of development and implementation, the LBMA is delighted to announce the first eight refiners to have successfully passed the LBMA's Responsible Gold Audit Programme. The Good Delivery gold refiners which have passed since June 2013 are as follows:

- AngloGold Ashanti Mineração Ltda, Nova Lima, Brazil
- Argor-Heraeus SA, Mendrisio, Switzerland
- JX Nippon Mining & Metals Co., Ltd, Saganoseki, Japan
- Mitsubishi Materials Corporation, Naoshima, Japan
- Mitsui Mining and Smelting Co.,Ltd, Takehara, Japan
- PAMP SA, Castel San Pietro, Switzerland
- Sumitomo Metal Mining Co.,Ltd, Toyo, Saijo, Japan
- Umicore SA Business Unit Precious Metals Refining, Hoboken, Belgium

The refiners listed above have successfully passed an independent third-party audit for 2012 production, confirming they comply with the LBMA Responsible Gold Guidance. The audit reviewed the refiners' production over a 12 month period. This process will be on-going, and the remaining GD refiners are now preparing for an independent third-party audit throughout 2013 and into early 2014.

Through mutual recognition of other industry initiatives, the LBMA also recognises that refiners have achieved compliance with the Responsible Gold Guidance by achieving either the Responsible Jewellery Council's Chain-of-Custody certification or Electronics Industry Citizenship Coalition (EICC) CFSI audit protocol.

Responsible Gold Guidance – Background

The LBMA has taken its role as accreditor of the world's gold refiners and expanded the scope of its requirements, to include OECD Due Diligence, by the creation of the Responsible Gold Guidance. The Guidance operationalises and extends the OECD Gold Supplement for refiners and builds on existing Anti-Money Laundering and Know Your Customer management systems and auditing practices. It also makes what is a voluntary system (the OECD Guidance) mandatory for all LBMA Good Delivery gold refiners wishing to be accredited for the London Bullion Market. This framework is intended to assure investors and consumers that all London gold stocks are conflict-free due to compliance with an audited, conflict-free process. The Guidance however, goes beyond conflict and also addresses other responsible sourcing issues such as money laundering and terrorist financing.

Access daily LBMA gold and silver prices direct from LME data distributors

From $15 per user, per month you can now access 5pm gold and silver data from the London Bullion Market Association's forward market makers.

Data sets include:

• Spot prices

• Forward rates – out to 10 years for gold and 3 years for silver

• Gold IRS – 12 months out to 10 years

Accessing the data

Subscribe to the full LBMA data set via LME's licensed data distributors.

Visit www.lme.com/LBMAdataset or www.lbma.org.uk

LBMA

Nothing in this document constitutes an offer or a solicitation of an offer to buy or sell any security or other financial instrument or constitutes any investment advice or recommendation of any security or other financial instrument. To the best of the LME's knowledge and belief, statements made are correct at the time of going to press. The LME accepts no liability for the accuracy of any statement or representation. The London Bullion Market Association (LBMA) licences the distribution rights for the Gold Forward Curve and related products (the "LBMA products") to the LME. All rights in the LBMA Products are retained by the LBMA.
The LBMA Products are available to the LME on an "as is" basis and as such, no representation, warranty or condition, express or implied, statutory or otherwise is given or assumed by LME. © The London Metal Exchange. A member of HKEx Group. No portion of this publication may be reproduced without written consent.
The London Metal Exchange, 56 Leadenhall Street, London, EC3A 2DX. Telephone +44 (0)20 7264 5555, www.lme.com

LONDON METAL EXCHANGE

Singapore

Asia's global precious metals trade hub

Neutral location for world-class precious metal custody

World's **easiest place to do business**

Southeast Asia's **largest LBMA gold refinery** being established

6,600 weekly flights to 256 cities

Zero-rated tax on gold, silver and platinum [1]

Touted to be the world's **biggest offshore wealth management hub** by 2020

Asia's **most secure and sophisticated vaulting facility**

Highest concentration of physical gold trading desks in Asia [2]

www.iesingapore.com/preciousmetals

1 Gold must be of at least 99.5% purity; silver must be of at least 99.9% purity; platinum must be of at least 99% purity; and they must be produced by LBMA/LPPM-accredited refiners
2 Defined as market making out of Singapore

International Enterprise Singapore is the government agency driving Singapore's external economy.

ie Singapore

Driving Singapore's External Economy

Save the dates
6 - 7 April 2014

Registrations opening shortly

Send your queries to register@dpmc.ae

2014 DUBAI PRECIOUS METALS CONFERENCE
6 - 7 April 2014, Dubai

www.dpmc.ae

DIARY OF EVENTS 2013 - 2014

AUGUST

19-22
2nd Asia Gold Summit
Singapore
www.asiagoldsummit.com/

SEPTEMBER

4-6
12th China International Silver Conference
Kunming, China
http://silver2013.metalchina.com/en.html

15-20
New York Platinum Week
New York, USA

18
Global Mining Finance: Autumn Precious Metals Conference
London
www.global-mining-finance.com/gmf-autumn

18-20
Colorado Precious Metals Summit
Park Hyatt, Colorado, USA
www.precioussummit.com/

19
IPMI 1st Annual New York Platinum Dinner
New York Palace Hotel, New York, USA
www.ipmi.org/index.cfm

19
LPPM/LBMA Cocktail Reception
New York Palace Hotel, New York, USA
admin@lppm.com

22-25
Denver Gold Forum 2013
Hyatt Regency, Denver, CO, USA
www.denvergold.org/gold-forums/

26-29
World Gold 2013
Hilton Brisbane, Queensland, Australia
www.ausimm.com.au/worldgold2013/

29/09 - 1/10
LBMA/LPPM Precious Metals Conference 2013
Rome Cavalieri Hotel, Rome, Italy
www.lbma.org.uk

OCTOBER

7-10
LME Week 2013
London, UK
www.lme.com/lmeweek.asp

16-17
The Gold Symposium 2013
Luna Park, Sydney, Australia
http://gold.symposium.net.au

22-23
Silver Institute Industrial Conference
Washington DC, USA
www.silverinstitute.org/site/

24-25
The Silver Summit
Spokane WA, USA
www.cambridgehouse.com/events/silver-summit-2013

27-31
Conference of Metallurgists 2013
Québec, Canada
www.metsoc.org/com2013

NOVEMBER

4-6
Europe Precious Metals Summit
Park Hyatt, Zurich, Switzerland
www.precioussummit.com

14
RBC Gold Conference
London
www.rbccm.com

21
15th Russian Bullion Conference
Hotel Baltschug Kempinski

26-27
NewGenGold 2013
Pan Pacific, Perth, Australia
www.newgengold.com

2014

APRIL

8-11
Denver European Gold Forum
Zurich, Switzerland
www.europeangoldforum.org/egf13/

MAY

19-23
LPPM Platinum Week
London, England

29-30
Precious Metals Summit – Hong Kong
Hong Kong, China
www.precioussummit.com/

JUNE

7-10
IPMI 38th Conference
JW Marriott Grande Lakes, Orlando, Florida
www.ipmi.org/conf_detail.cfm?id=35

SEPTEMBER

14-17
Denver Gold Forum 2014
Hyatt Agency, Denver, CO, USA
www.denvergold.org/gold-forums/

OCTOBER

20-23
LME Week
London
www.lme.com/lmeweek.asp

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

Members

Rather unusually, there was only one change to the membership list during the past quarter. On 16 April, RC Inspection of Hong Kong was admitted as an Associate.

GOOD DELIVERY LIST

On 24 May 2013, the silver refinery of Anyang Yubei Gold and Lead Co., Ltd from Henan Province in China was added to the Silver List. The refinery's primary sources of silver feedstocks are anode slimes recovered from its lead electrolysis production.

COMMITTEES

Management Committee

The Management Committee has held three meetings in the past quarter.

After much discussion, it was decided that the Executive should carry out a new Gold Trading Turnover Survey covering Members' trading in the whole of 2012. The survey was launched at the end of May and returns have been coming in steadily. A summary of the results should be available in time for the next issue of the *Alchemist*.

The Committee was pleased to see that following discussion within the Market Makers group, the new GOFO page 'NEWGOFO' on Reuters finally went live on 13 August. The page shows both bids and offers that are dealable by other Market Makers during the contribution window of 10:30 – 11:00 am. A question which is clearly going to become an important one for all markets, including the precious metal markets in London, is how to respond to the publication by IOSCO of its principles for the compilation and administration of benchmarks.

Regulatory Affairs Committee

At its meetings in May and June, the RAC focused on a number of topics: the market impact of US and forthcoming EU regulation, gold supply chains, the gold turnover survey (mentioned above) and benchmark regulation.

A further LBMA Members' Seminar was held on 24 April, which focused on two main regulatory issues (the impact of Dodd Frank on the bullion market and forthcoming EU regulation). This was followed by presentations on the cleared forwards platforms set up by the CME Group and the London Clearing House in combination with the LME.

On the subject of gold supply chain regulation, the LBMA organised, for the second year in a row, a Responsible Gold Forum in Paris. This was held on 1 May in conjunction with the OECD meeting on the related topic of conflict minerals. The LBMA is planning to hold another Responsible Gold Forum in Rome on 1 October. This is being organised in conjunction with the Responsible Jewellery Council during the second day of the LBMA Conference.

The LBMA has noted with some concern that the European Commission has announced plans to introduce legislation on the topic of conflict minerals. The LBMA's view, which has been expressed to the Commission, is that such legislation is not required given the very robust (and mandatory) compliance requirements that the industry has introduced.

One of the results of the RAC's work has been the decision to support the development of the Futures and Options Association's EU Regulatory Implementation Handbook. All LBMA members were informed by the Executive on 31 May about this online service and how they can gain access to it.

Finally, the Committee's membership has been bolstered by the addition of Jeremy Wall of Société Générale.

Physical Committee

In late July, the Committee approved a new edition of the Good Delivery Rules. These include a new definition for the undercut based on the angle of deviation from the vertical of the sides and ends of the bar. The new edition also gives a full specification for an electronic scale that can be used for weighing Good Delivery gold bars.

The Committee also received the first batches of Responsible Gold audit reports (see Regulation Update on page 25 for further details).

Public Affairs Committee

At its three recent meetings, whilst the PAC have been progressing a range of issues the main focus of attention in recent months has been on preparing the LBMA/LPPM Conference in Rome, which will take place on 29 September to 1 October. The Committee have concentrated in particular on the programme of topics and speakers but it has also been guiding the Executive on the various extramural aspects of the Conference. The PAC should be congratulated on creating a particularly strong speaker programme this year, highlights of which include keynote speeches from Salvatore Rossi, Director General of the Banca D'Italia, and Francesco Papadia, Chairman of Primary Collateralised Securities.

For the first time, there is also a dedicated Official Sector Session, with senior representatives from four central banks, the Bank of England, the Banque de France, the Bundesbank and the Central Bank of Argentina, with the session chaired by Terence Keeley, Head of Official Institutions at BlackRock. There are many other highlights in an excellent programme that includes sessions on both long-term and short-term investment, regulation and PGMs.

In addition to the main conference programme there will also be a Responsible Gold Forum on 1 October, which has been organised by the LBMA and the Responsible Jewellery Council. The forum will take place in the form of parallel sessions to the main conference programme.

Membership Committee

There were two changes in the Membership Committee resulting from the resignation of the previous chairman, Michael Ludwig. The first was that the Committee agreed that the chairmanship should be taken over by Nick Frappell of Mitsui. The vacancy itself attracted a record number of candidates – no less than 14. At its meeting in late June, the Committee agreed to invite Lee Foster of HSBC to fill the vacancy.

In spite of only approving one application for Associateship in the past quarter, the Membership Committee has been kept busy with a number of issues. The Committee is also aware of a substantial number of applications that are in progress. The time taken to process applications is mainly a function of the time it takes to obtain sponsorship letters from three companies within the membership and, in fact, it is a reflection of the seriousness with which this task is viewed by sponsors that sometimes the process can be rather protracted.

The Membership Committee is also discussing the best way of implementing the Management Committee's decision that Associate reviews should be carried out annually rather than every three years as in the past.

Finance Committee

Following the resignation of David Holmes from the Committee, the Management Committee decided to increase the number of members of the Finance Committee. As a result of the announcement of the vacancy in the last issue of the *Alchemist*, a number of excellent candidates put their names forward and, at a special meeting in July, the Committee decided to invite Jane Lloyd from Scotia Mocatta and David Burns from Commerzbank to join it. It should perhaps be mentioned that it is a coincidence that both of the Davids mentioned here worked for the same company!

PlatforM Meeting

The LBMA hosted a meeting of the PlatforM group on 7 May. The group includes a number of international associations concerned with precious metals

and its agenda allows an exchange of views to facilitate co-ordination and avoid duplication in a number of areas, particularly those related to regulation. This group will meet again in September in the environs of the Conference in Rome to discuss the EU conflict minerals legislation as well as other important issues.

AGM

The 2013 LBMA Annual General Meeting was held at Merchant Taylors Hall, Threadneedle Street, in the City of London at 5:30 pm on 19 June. In addition to the formal business of approving the accounts and appointing the auditors, the meeting received reports from the Chairman and the chairs of the five subcommittees.

This year, the election for the Management Committee involved just the Market Makers. As per the new version of the Articles agreed in 2011, the Market Making Member representatives on the Committee were required to stand down at this year's AGM (though they were eligible to stand again for election for a two-year period, which all of them did). The following five representatives put their names forward for the five places on the Committee reserved for Market Makers and were thus elected without the need for a ballot.

MARKET MAKING MEMBERS

- Philip Aubertin (UBS)
- Ronan Donohoe (Deutsche Bank)
- Peter Drabwell (HSBC Bank USA NA)
- Steven Lowe (Bank of Nova Scotia – ScotiaMocatta)
- Kevin Roberts (JP Morgan Chase Bank)
- Ronan Donohoe thus takes the place of Raymond Key, who resigned from the Committee earlier this year.

The continuing Ordinary Members, whose turn it will be to stand down next year are:

- Grant Angwin (Johnson Matthey)
- Simon Churchill (Brink's)
- Jeremy East (Standard Chartered Bank)
- David Gornall (Natixis London Branch)

The new Committee then met and elected David Gornall as Chairman and Steven Lowe as Vice Chairman for the coming year.

LBMA STAFF

It is a pleasure to announce the well-deserved promotions of Emma Attridge and Collett Roberts to the positions of Good Delivery Assistant and Events Co-ordinator respectively. However, we are very sorry to be losing the services of Rebecca Adamson as our Good Delivery List Officer in mid-September. Rebecca has been a vital member of the LBMA team since she joined in 2008 and she will be greatly missed. We wish her the best of luck as she returns to University to do an MA in Applied Theatre.

VACANCIES

– LBMA Regulatory Affairs & Compliance Officer and GDL Officer

The Management Committee has approved the recruitment of a new senior member of staff to take responsibility for various aspects of the LBMA's work in relation to regulation and compliance. Anyone interested in applying for the Regulatory Affairs & Compliance Officer or the Good Delivery Officer vacancies should contact the Operations Director (Stuart.Playford@lbma.org.uk) for further details.

LPPM/LBMA Cocktail Reception

New York - 19 September 2013

The LPPM, together with the LBMA, are holding a Cocktail Reception for their members and invited guests on Thursday 19 September 2013 from 18.00 - 20.00 at the New York Palace Hotel.

Any members wishing to receive an invitation please contact admin@lppm.com

Market Moves

Timothy Lyes joins Natixis

Timothy Lyes recently joined the metals team at Natixis – Global Markets Commodities in London. In his new role he will focus on expanding the Natixis precious metals franchise throughout EMEA. He previously spent 7 years working on the metals sales desk at Barclays Capital in London.

Thomson Reuters GFMS has strengthened its team with the appointment of **Rhona O'Connell** as Head of Research. Rhona brings 30 years' markets experience, including at Shearson Lehman Brothers, Rudolf Wolff, Consolidated Gold Fields and latterly the World Gold Council and GFMS Analytics. **Dr Ryan Cochrane** joins as a Mining Analyst, having previously worked as a gold exploration geologist in South Africa and China. **Andrew Leyland** has joined to manage demand-side research across the Americas. Andrew has ten years' experience in the metals markets, most recently as Principal Consultant at CRU and Senior Commodities Analyst at VTB Capital.

Who Let The Bears Out

Editorial Comment by Dr Edel Tully, Executive Director, Global Precious Metals Strategist, UBS Ltd

The annual pilgrimage for the precious metals market brings us to Italy for the 2013 LBMA/LPPM conference. Rome is our venue, and while its demand for and manufacturing of gold jewellery has waned in recent years, there are few places with a comparable precious metals history.

The conference structure is very similar to that of previous years, with topics ranging from the physical markets to investment to the auto industry and beyond being natural inclusions in the programme, yet one ingredient is glaringly missing this year – market optimism. Instead, we have a new guest at the party, the bears are back in town.

This is not a cute Aussie koala bear, no way Sir. This is a fully grown grizzly bear. And because it has been left out in the cold for more than a decade, it's determined to make its voice heard.

For many, including myself, who entered this market post-2000, tumbling prices are a new phenomenon. Gold bears have largely been in hibernation for most of our annual conferences thus far. Although some never quite went away, their whimperings were drowned out by a cacophony of roaring bulls. All was jolly in the precious metals world – we were the invincibles. But all good things have to come to an end.

Those of us who have served on the Public Affairs Committee over the years will testify to the difficulty in securing a speaker of a negative price persuasion. Sure they existed, but few were brave enough to stand in front of a 99.99% bullish audience. And any chance of a controversial and bearish speaker was fully lost when Andy Smith become gold's fan a few years back.

That sentiment surrounding metals has been turned on its head should make for great debate amongst the chosen speakers. Whether the bearish cloud will transfer into another record conference attendance, topping last year's sell-out 652 delegates in Hong Kong, remains to be seen.

The conference kicks off on Sunday, 29 September with an afternoon networking reception at the Rome Cavilieri Hotel, kindly sponsored by the Confindustria Federorafi. The main proceedings start on Monday with two vigorous keynote speeches from Salvatore Rossi, Banca d'Italia, and Francesco Papadia, Primary Collateralised Securities.

For the third year running, this conference is hosted in association with the LPPM. With gold and silver having fallen out of favour with many, PGMs by comparison have suffered less. And so interest – particularly if we all believe in a US-led recovery – should be heightened for the more industrial metals in the pack.

Two investment sessions – this year with a short and long-term focus – will prod and probe how investors and speculators rank metals, and challenge consensus views. Is there still a case for gold as a longer-term diversifier or is gold the next big short? Some very experienced traders share their strategies on topics such as high frequency and systematic trading along with the merits of taking a directional price view versus volatility.

Perhaps it's no coincidence that as gold prices rallied, and official sector reserves started to swell, central bankers shied away from the LBMA podium to talk about gold's monetary role. Filling the official sector session was a constant challenge. This year, prices have fallen by double digits, and we have the grand total of four central bankers from the UK, Germany, France and Argentina speaking in the session, as well as mentioned earlier one from Italy in the opening session. Surely there's a message in this trend....

Without the swift reaction function of the physical markets back in Q2, it's likely that gold prices would have fallen further, and faster. Premiums soared, supply bottlenecks followed. But can the physical markets act as gold's life support? The speakers in the physical and the jewellery session will share their perspectives.

Precious metals regulation is tackled, with a focus on upcoming changes to the London precious metals market, conflict gold with a US focus and conflict minerals in the EU. A forum examining updates to Responsible Gold follows.

The final panel session has in recent years become the party piece of the event – this time, with an academic as referee, a host of outspoken, often controversial, yet vastly experienced folk battle out the future direction of the gold market.

Regardless of metal price behaviour, the LBMA/LPPM conference offers the best platform for much debate and networking as old and new friends gather together. I must thank the hard-working members of the Public Affairs Committee for once again pulling together a great programme. Their work however would be redundant without the heavy lifting from the LBMA executive, in particular Ruth Crowell and Aelred Connelly.

Dr Edel Tully, Executive Director, Global Precious Metals Strategist, UBS Investment Bank
Edel Tully is UBS Investment Bank's head of precious metals strategy, with responsibility for forecasting and publishing research on the precious metals complex.

Edel holds a PhD from Trinity College Dublin (2006), awarded for her thesis 'A Tripartite Investigation of the Gold Market: Pricing Influences, Intraday Patterns and Daily Seasonality', and a Bachelor's degree in Business Studies from the University of Limerick (2002). She is chairwoman of the Public Affairs Committee of the London Bullion Market Association (LBMA). Prior to joining UBS in January 2010, Edel was head of precious metals research at Mitsui and Co. Precious Metals Inc., a role she held from 2006

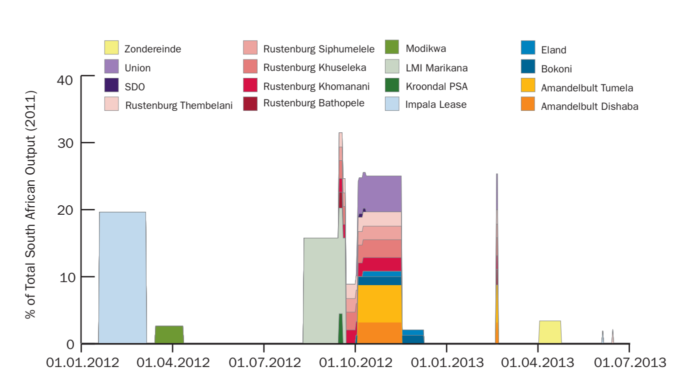
facing facts

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS.

Industrial action in South Africa's platinum sector – what's next?

Few would dispute that last year one of the most significant issues in the platinum market was the widespread and unprotected mineworker strike action. This shook the industry in February and again from July to November 2012. A common feature of many of the platinum strikes was heightened violence, including a number of murders in townships near affected mines, as well as attacks on mineworkers and security staff. Arguably, the civil unrest at Wonderkop township, which degenerated into the Marikana tragedy with 34 fatalities and a further 78 injuries, was one of the darkest points of post-apartheid history. The stoppages surrounding these episodes were the key driver that pushed the platinum market in 2012 into what Thomson Reuters GFMS evaluated to be a modest gross deficit* of 83,000 ounces, the first such market shortfall since 2004. This outcome is especially noteworthy given that platinum's largest demand segment, autocatalyst, has in recent years languished at levels of sub-3 million ounces, a level last seen in the 1990s. Since the start of 2013, production disruption has abated substantially, although tensions remain high.

The chart illustrates the episodes of strike disruption across the platinum industry over the past year, expressed as a percentage of 2011 production capacity taken offline, and clearly reflects the extent to which disruption has subsided.



Source: Thomson Reuters GFMS

A combination of factors contributed to these illegal strikes, including rapid urbanisation, local government's inability to deliver services in line with the growth in the area, fragmented communities, increased service delivery protests, high levels of youth unemployment, inter-union rivalry, as well as an increase in micro-credit lending to mineworkers, which negatively impacted their take-home salary.

To provide an overview, the first of the major wildcat strikes hit Impala Platinum's Lease Area for six weeks during the first quarter of 2012. Early on, disgruntled rock drill operators (RDOs), a mid-level labour category with a fundamentally important role in the ore production process, went on an unprotected strike and appeared to abandon the established National Union of Mineworkers (NUM). Initially, these workers were represented by ad-hoc workers' committees, but then the Association of Mineworkers and Construction Union (AMCU) stepped up and emerged as the representative body. Although conditions remained tense in the following months, more modest levels of disruption persisted until July, when the situation turned volatile at Lonmin's Marikana mines. It was at Marikana where a prolonged period of strike action commenced, and indeed peaked with the tragic shootings at Wonderkop. During September, the situation continued to remain challenging in the Rustenburg area, leading to Amplats front-running strike unrest by voluntarily ceasing operations at its conventionally stopped Rustenburg shafts amid heightened local intimidation and concerns about safety. A call to return to work proved unsuccessful and unrest quickly spread, causing operations to cease at Union mines, Mortimer smelter and Amandelbult mines. At Rustenburg, workers stayed away for a period of two months.

Deep amongst the disruption was the growing prominence of the AMCU, which has succeeded in boosting its share of labour representation at the expense of the NUM, which has links to South Africa's governing African National Congress. The rise of AMCU was made possible by the complex socio-economic situation, involving, among other factors, the slow pace of improvements to housing conditions, an over extension of credit to mineworkers leading to a squeeze in take-home income and a perception that union representation was not uniformly managing the interests of its labour categories. This fostered discontent among certain segments of the mining workforce and led particularly to discontent among RDOs.

AMCU's progress recruiting new members appeared to centre on discrediting the NUM and, many have suggested, also encouraging unprotected strike action in order to drive higher out-of-cycle wage demands. AMCU's rise in membership levels has occurred to such an extent that it is now widely regarded as the dominant union in the platinum industry. It seems highly likely that this will be followed by formal recognition of the union by several major producers, although this process appears to be moving slowly. This is a key detail, owing to the structure of labour negotiation in South African platinum mining in the past, a large part of which takes place on the basis of recognition agreements that operate on a 'winner takes all' basis – in these cases meaning that the mining company will only engage with representatives of the dominant labour union representing the largest proportion of its workforce within certain labour categories.

More recently, although not without problems, the levels of disruption in the first half of 2013 have improved markedly, with the stand-out strike action being a multi-week stoppage led by RDOs at Northam's Zondereinde operation in Limpopo. To put this into perspective, while Zondereinde reported losses of around 10,000 ounces, the Impala strike last February led to direct losses of well in excess of 100,000 ounces of platinum. This reflects a situation so far this year that has been notably less inflamed than most, including ourselves, had anticipated.

So, does this point to an end to the major strike episodes? We don't think so. There are factors we can highlight that would suggest an easier road ahead, but a number of issues remain.

Now that the AMCU is considered the dominant union in the platinum sector, the number of shafts liable to face the extreme unrest as a result of recruiting members may be considered more limited. Nevertheless, negotiations and legal wrangling lie ahead regarding a solution to formal recognition of the AMCU, and both major unions have their reputations at stake with respect of promises doubtless made when lobbying workers to build and retain union representation. A consequence of this has been recent opening demands for increases to basic pay cited to be as much as 150% for lower worker categories (in the case of AMCU's demand to Anglo Platinum). Labour costs typically account for 50-60% of an underground mine site's operating cost, and most mines' economics are already borderline at best: in 2012, South African total cash costs averaged $1,330 per platinum equivalent ounce, with all-in costs (including capex and certain non-cash items) averaging close to $1,800/oz. Such large wage settlements, or anything close, would drive almost any Bushveld platinum asset into a deeply loss-making position immediately, with widespread unemployment quickly following. Nevertheless, this demand represents 'fighting talk' and it is hard to see wage negotiations, which have been delayed so far, running smoothly this year. Only Aquarius Platinum has reported having recently achieved a 'realistic' one-year settlement, as yet undisclosed but guided as 'just above inflation', which represents a remarkable outcome.

The past six months of comparative stability could well represent the 'calm before the storm', with the potential for both production losses through wage negotiations and further resistance to possible restructuring to ramp up again in the second half, which in our view carries a high probability.

**Gross surplus or deficit is a measure of the underlying fundamentals of platinum and indicates the extent to which fabrication demand may have depended on the release of above-ground stocks, or otherwise. At the same time, this also indicates the change in global above-ground stocks.*

William Tankard, Research Director, Precious Metals Mining Thomson Reuters GFMS

Having joined GFMS Limited as a Metals Analyst in 2005, William has eight years' experience researching the metals markets, principally covering mine production and associated producer activities. He was brought across to Thomson Reuters in a 2011 acquisition and now holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. William has accountability for the mining team's research output of global production, mining costs and producer hedging issues across the precious metals sector. In addition to undertaking research for annual Surveys, forecast reports and bespoke consulting assignments, he played a lead role in the development and delivery of GFMS' market-leading PGM Mine Economics Service. He holds a BSc. (hons.) degree in Natural Sciences from the University of Durham, where he specialised in Geology.

The Alchemist is published quarterly by the LBMA.
For further information please contact Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

VERISCAN

BULLION IDENTIFICATION SECURITY SYSTEM

The Fingerprint of the Future

Finally, bullion arrives in the digital age…

PAMP, the renowned industry innovator, once again transforms the world of precious metals by introducing the latest in Laser Surface Authentication technology: VeriScan™.

With a uniquely individual and imperceptibly present 'surface signature' that is up to four-times more distinctive than a human fingerprint, each PAMP bar is designed to enhance authenticity while offering you a world of possibilities to identify and manage your transactions of PAMP bullion.

Progressive worldwide rollout begins early 2013.

PAMP®
Produits Artistiques Metaux Precieux

TRUST IS PRECIOUS

The Art of Precious Metal Transformation®

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

LBMA

Alchemist

The London Bullion Market Association ISSUE 72 December 2013

In this issue

The LBMA ring the NYSE closing bell. The photo shows the view from the podium looking down onto the NYSE trading floor as the LBMA Executive and guests prepare to ring the closing bell.

METALS | AGRICULTURE | ENERGY | FX | EQUITIES | INTEREST RATES | WEATHER

Where the World Trades Gold

Liquid. Transparent. Secure.

Gold market participants from around the globe turn to the world's largest and most mature precious metals futures and options exchange when they need flexible trading and financial management solutions.

The benchmark COMEX Gold Futures and Options contracts are complemented by our extensive metals product suite including silver and platinum group metals contracts. Access the unparalleled liquidity of CME Group's gold and precious metals market for around-the-clock trading on the CME Globex electronic trading platform as well as flexible clearing solutions via CME ClearPort. Our market-leading gold products offering includes:

- Benchmark 100-oz Gold Futures and Options
- 50-oz miNY Gold Futures
- 10-oz E-micro Gold Futures
- Cleared OTC London Gold Forwards

For more information on our precious metals contracts, please contact the CME Group metals team at **metals@cmegroup.com**, or visit **www.cmegroup.com/metals**.

How the world advances

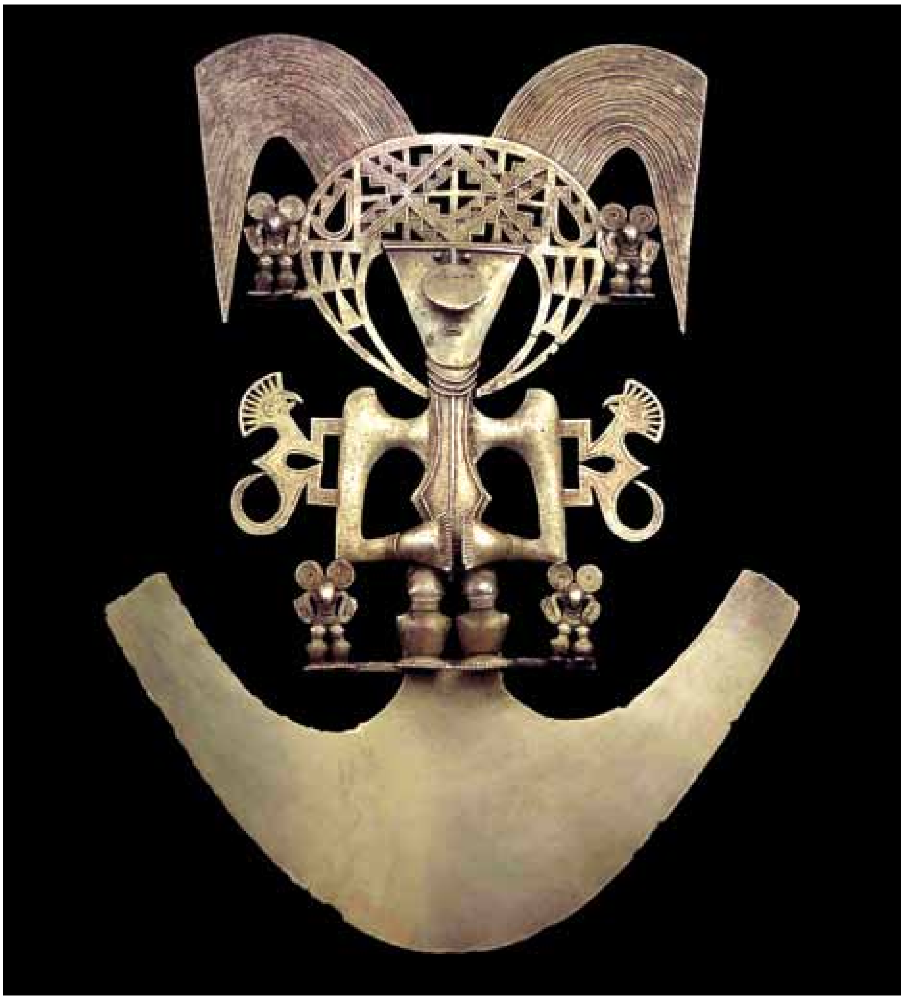
CME Group

CME Group is a trademark of CME Group Inc. The Globe logo, CME, Chicago Mercantile Exchange and Globex are trademarks of Chicago Mercantile Exchange Inc. CBOT and Chicago Board of Trade are trademarks of the Board of Trade of the City of Chicago. NYMEX, New York Mercantile Exchange and ClearPort are trademarks of New York Mercantile Exchange Inc. COMEX is a trademark of Commodity Exchange Inc. Copyright © 2013 CME Group. All rights reserved.

Beyond El Dorado (the golden one): Power and Gold in Ancient Colombia

By Tim Green, Author and Journalist

Tim Green reviews this fascinating exhibition at the British Museum. With more than 300 pieces on display it powerfully brings to life the sophisticated metal working techniques employed by Colombian craftsmen thousands of years before Colombus discovered the Americas.



Bird pectoral, Popayan, gold alloy, AD900-1600. © The Trustees of the British Museum

The passengers in First Class on an American Airlines flight from Bogotá to London early this autumn were treated with the greatest respect. After all, they had been created centuries ago in the hands of craftsmen skilled in the gold-working techniques of 'lost wax' casting and the hammering of metals, including tumbago, an alloy of gold and copper. The earliest dated from 1600 BC.

These masterworks from Colombia reveal the true origins of El Dorado, 'the golden one', a lost city of gold. The myth actually refers to a ritual at Lake Guatavita, near modern Bogotá, at which a newly elected leader covered in powdered gold dived into the lake and emerged as Chief of the Muisca, who lived in the highlands of Colombia.

This exhibition displays more than 300 objects from the Museo del Oro in Bogotá and the British Museum's own pre-Colombian collection. The result is one of the finest exhibitions of historic gold artefacts that I have seen.

Seated female poporo, Quimbaya, gold alloy, AD600-1100. © The Trustees of the British Museum

> *"In ancient Colombia, people did not desire or use gold for its economic value. Rather it was revered for its symbolic association and transformative properties, and its association to the sun"*

The scene is set the moment you step inside the darkened chambers to a background hum of birds chattering in a rain forest. Penetrating the shadows, you catch soft gleams of gold on every side.

But this is not gold as currency held for its economic value. As the Curator, Elisenda Vila Llonch, explains: "In ancient Colombia, people did not desire or use gold for its economic value. Rather it was revered for its symbolic association and transformative properties, and its association to the sun. This sacred metal was used to create some of the most visually dramatic and technically sophisticated art found anywhere in the Americas before European contact."

Thus, we are confronted with the gold objects of spiritual leaders who embarked on a mystical 'soul journey' played out in the public expansion of identity and rank by chiefs and spiritual leaders accompanying the deceased on the final journey to the afterlife. The gold was transformed into face masks, chest and nose ornaments, ear spools, pectorals, even tweezers for plucking out body hairs. In turn, the natural

world of birds, fish, crocodiles, jaguars and bats (for the night world), along with 'tunjos' (votive figures) were recreated in gold. A luxury was a lime flask made from a gourd cast in gold, containing lime powder from crushed shells into which a golden spatula or 'dipper' was poked after being moistened on the tongue while chewing a wad of coca leaves. These were the fashionable cigarette cases of the day.

Crocodile shaped pendant, late Quimbaya, gold alloy, 700 BC – AD 1600. © Museo del Oro – Banco de la República, Colombia.

So where did the gold originate and how was it mined and refined? From the beginning, the cordilleras of the northern Andes offered easily worked placer deposits from which gold was carried down towards the rivers that flowed to the Pacific and the Caribbean, that is along the rivers Malagana to the east, the Cauca in the centre and the Calima to the Pacific. Gold was recovered from alluvial deposits using fire-hardened sticks to break up the bank. Gold dust and nuggets were then washed out in shallow wooden trays (much as happened in the California gold rush centuries later) and transported in animal skin pouches down to the valleys. Mining was essentially a seasonal occupation. However, as Curator Elisenda Vila Llonch in her handsome book about the exhibition (British Museum Press, 2013) says: "In the principal gold-sourcing areas, such as the mountains of Antioquia, where the important mining site of Buriticá was situated, full-time workers operated. The gold then traded along to the principal craft production centres such as the metal-working site of Dabeiba. There, metals and alloys were smelted in crucibles, ceramic ovens and furnaces, where the desired temperature was reached by the blowing of air into the fire with blowpipes. The result was a small round piece of metal known as a tequelo or ingot. The tequelos were traded to important chieftains to be reworked by local goldsmiths using two processes – hammering and casting."

They excelled at casting large and small objects using the lost wax technique. Fortuitously, they could use wax from stingless bees (an advantage over the neighbouring Incas in Peru to the south, where bees did not exist and the manufacture of gold ornaments relied on the hammer). In Colombia, the wax enabled the gold to be moulded into a galaxy of shapes and figures. The wax was first enveloped in layers of fine clay and, once the mould was finished, it was fired. The wax was then melted and poured out to leave space for the molten gold that was poured into the final cast piece. After cooling, the clay mould was broken and the golden figure emerged. The technique required skilled temperature control.

Necklace of red stone and claw shaped beads, Tairona, gold alloy, AD900-1600. © Museo del Oro – Banco de la República, Colombia

Even more adroit, in the territory of Muisca, stone matrices carved on six sides were used to mass produce wax moulds for casting necklace beads and ornaments.

> *"In the principal gold-sourcing areas, such as the mountains of Antioquia, where the important mining site of Buriticá was situated, full-time workers operated."*

What fascinates me is that a people quite cut off from the rest of the world before Columbus discovered the Americas had mastered such sophisticated metal-working techniques almost on a scale of mass production in a tradition going back several thousand years.

The prize of this exhibition, almost its symbol, is a pectoral, dating from AD 900, found in a tomb at Timbío in the Cauca region in the 1930s. It depicts a decorated human figure wearing an elaborate headdress and a large nose ring, and accompanied by pairs of bird-like attendants, creating a sublime impression of tranquillity. Equally dramatic is a gold alloy anthropomorphic bat-man pectoral from about AD 900. Craftsmen from the Tairona region made bats and bat-men, as well as body ornaments for the elite.

Anthropomorphic bat pectoral, Tairona, gold alloy, AD900-1600. © Museo del Oro – Banco de la República, Colombia

The prize for originality, though, must go to the famous raft or tunjo from Lake Guatavita, a votive offering for a new Muisca ruler, possibly dating from AD 600. As Elisenda Vila Llonch puts it: "They made a raft out of rushes ... embellishing it ... with the most attractive things they had. They stripped the heir to the skin and anointed him with a sticky earth" on which they placed gold so that he was completely covered with this metal. They placed him on the raft ... at his feet, they placed a great heap of gold and emeralds for him to offer to his god ... when the raft reached the centre of the lagoon ... the gilded Indian then made his offering, throwing out all the pile of gold into the middle of the lake. From this ceremony, came the celebrated name of El Dorado, 'the gold one'. Over succeeding centuries, attempts have been made to trawl the lake and even drain it. Scattered gold and ceramics have been discovered, but not the riches that legend suggests.

Over the centuries, however, relics large and small have turned up as testimony to a unique society in which the skills of goldsmiths found myriad applications. As early as 1500 BC (contemporary with the manufacture of the finest ornaments in Egypt), the Calima-Malagana made necklaces of gold beads hammered into the shape of insects, with each piece folded into a little finger. Large

funerary masks, sometimes with three masks layered one on top of the other, also suggested transformation from the material to the spiritual world.

By 500 BC, the use of relics was more widespread and bold mask pectorals were fashionable among the Quimbaya of central Colombia, who lived close by the Buriticá mining area. One bold mask in the shape of a face has filed teeth (a delight for a modern dentist). The Quimbaya goldsmiths, using the lost wax technique, were tackling double moulds to produce spectacular lime flasks. A robust male and female pair fully naked (male standing, female seated) with body ornaments and piercing marks on their legs indicate body building. However, goldsmiths were not infallible – on the male, a mistake in casting had been patched up, showing it was valued. Perfection comes with two warriors' helmets of hammered gold decorated with figures and geometric patterns. The gold, however, is soft, suggesting that the helmets were not for use in battle, but more a symbol of status and symbolically strengthened the wearer with the power of the sun.

By 200 BC, the Zenu, who lived on the tropical Caribbean plains and were masters of irrigation, were at the height of their civilisation. Leaders were buried in tombs with impressive gold breast plates. The Zenu also evolved skills in casting thick filigree wires from long threads of wax, creating large, lacy, fan-shaped filigree ear ornaments, and bold moustache-like filigree ornaments. The skill required to cast such complex shapes was impressive, not least the ability to produce the minute beeswax components and to control the flow of molten metal to fill every part of the mould. The Zenu were equally skilled at hammering breast plates and embossing them with jaguars, snakes and alligators, using immaculate repoussé techniques.

Jaguar pendants were often made from an alloy known as tumbago, a mix of gold, copper, silver and, occasionally, a touch of platinum. Tumbago was a stronger metal than pure gold and had a lower melting point. The most dramatic jaguar creation on display incorporates a lime flask crafted by folding very thin sheets of gold to create a three-dimensional shape,

Mask with nose ornament, Quimbaya, gold alloy, 500 BC – AD 1600. © The Trustees of the British Museum

> *“By 200 BC, the Zenu, who lived on the tropical Caribbean plains and were masters of irrigation, were at the height of their civilisation. Leaders were buried in tombs with impressive gold breast plates.”*

which was then clipped to its claws and tail. The jaguar's nose ring is of platinum, a rare, highly valued metal.

Animals and birds featured widely in goldsmiths' work. A tiny Zenu toy rattle shows a face with a headdress of two feathered birds' heads, while flowers and plants with a touch of gold reflected their smell and healing properties. Gold sea-shell pendants were popular, while golden fish hooks may have been used in rituals to encourage a good catch.

As for music, a goldsmith of the Calima-Malagana people hammered and embossed a trumpet as early as 200 BC, while a charming dancer made by the Tolima held a wand in each hand. Ancient Colombia might be declared 'the gold society'. I can recall no other civilisation where gold was such an integral part of everyday life. And you come out of that humming forest that sets the scene of the British Museum exhibition feeling that you have had a unique glimpse into the goldsmiths' world several thousand years ago. Go and see the show – it continues until 23 March 2014.

The Beyond El Dorado (the golden one): Power and Gold in Ancient Colombia exhibition runs from 17 October 2013 to 23 March 2014 at the British Museum. Curated by Elisenda Vila Llonch and sponsored by Julius Baer.

Timothy Green, Author and Journalist

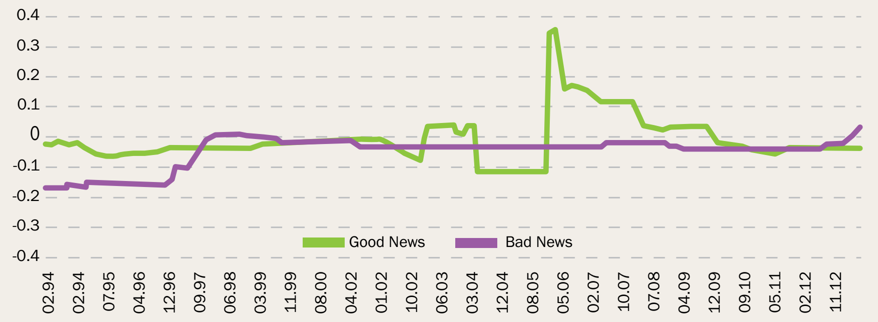
Tim has been writing about gold for over 40 years. His first book, The World of Gold, came out in 1968 and was revised several times. He also wrote The Gold Companion: The A-Z of Mining, Marketing, Trading and Technology for the Swiss company MKS Finance SA. His latest book, The Ages of Gold, on the 6,000 years' history of the metal, was published in 2007 by GFMS, the precious metals research company, for whom he was also a consultant on world gold markets for three decades. In 2010, he wrote Building a Global Brand, The London Good Delivery List 1750-2010 for the LBMA.

The Behaviour of the Spot and Forward Markets

By Brian Lucey, Professor of Finance, Trinity College, Dublin and Fergal O'Connor, current holder of the LBMA bursary, and lecturer at York St. John Business School

The LBMA's 2011 survey of LOCO London Liquidity showed gold spot and forward markets to be worth $13.5trn and $750bn per quarter, making London by far the largest centre for gold trading in the world.

Figure 1: Mood and Outlook for the 12-month Forward Premium



In a recent working paper, we examined the link between these two markets under both the classical economics approach and under a behavioural lens. The economic theory of 'rational expectations' says that rational and risk-neutral investors will set a forward price that is an unbiased predictor of the future spot rate; not a perfect predictor but one whose errors sum to zero over time. But we rarely find this to be the case for any asset examined.

We tested whether this holds for gold, using data from 1989 to mid-2013. First we looked for, and found, a long-run equilibrium relationship between the spot and forward prices using co-integration analysis. But it is not in the form of a one-for-one relationship as it should be, one eventually equal to the other. Strike one against Rational Expectations.

We also assessed whether changes in spot and forward prices are equal over time. At longer horizons (12 and six months), the theory again fails, but once we move to the shorter term, the answer begins to change. The three-month forward rate is a marginal case, but we can be fairly confident that at a one-month maturity, the forward market is an unbiased predictor of the expected future spot price using this method. The gold market seems to be able to predict the near-term level of the spot market with forwards but not much out beyond a quarter.

So there is some evidence that the gold market may be irrational. This finding is not unusual, mirroring the results of studies on other asset classes such as equities and foreign exchange. A significant portion of the research on this issue from the Foreign Exchange market finds that instead of a perfect positive correlation between the two, a strong negative correlation exists. Rational expectations ignores both the market's ability to act irrationally and the influence of risk adverse speculators. These can cause forward prices to be above the expected future spot price if they take mostly short futures positions, while end users are mostly long. Speculators can then sell the asset for more than the spot price, giving them a return from bearing the risk of the forward contract.

Our work is mainly concerned with looking at the behavioural explanations of the failure of rational expectations to hold. Specifically we ask: Is the market optimistic or pessimistic in its forecasts? Do investors over or under-react to news? We try to answer these questions by looking at the way news is incorporated into the forward premium, the market's forecast errors and the revisions made to forecasted spot prices as they come to maturity. We allow for investors to be risk averse in all of our findings below.

Irrationality can be observed in a number of ways. If investors put more weight on 'private' information over public information, they consistently underreact to all types of publicly available news, as has been found to be the case in the equity market. The market's mood can also be dependent on the type of news it receives, as shown in the table below. If the market overreacts to good news and underreacts to bad news, it is optimistic; if it underreacts to good news and overreacts to bad, it is pessimistic.

Mood	Good News	Bad News
Optimism	Overreact	Underreact
Pessimism	Underreact	Overreact

We find that the gold forward premium is optimistic; overreacting to large positive changes in the spot rate (good news) and underreacting to large negative changes (bad news). Indeed, forecast errors react in the same way to all news, overreacting to good and bad news alike. Revisions to the market's forecasted spot price overreact to the forecast errors it has just made. To see whether the gold market's mood has been stable over time, we rerun the same tests but do so on an ever-increasing sample, starting at four years of data and gradually increasing the sample size until we use the full sample again.

The forward premium and the markets forecast errors suffer from mood swings throughout the sample, sometimes being optimistic, then pessimistic. We show this for the 12-month forward premium in Figure 1, using changes in the spot price as news. If there were no behavioural biases and markets were rational, the two lines would be at 0 all the time. If the Good News line is positive, the market is underreacting to large positive spot price changes, and overreacting if it is negative. By the end of the period, the market is optimistic as stated above, but we can see that there are times (e.g. the mid 2000s) when the opposite is true. At the beginning of the sample, the market is consistently overreacting to all news. The market's revisions to forecasts are consistent over the sample, overreacting to its past errors almost all of the time.

So the gold market's behaviour does seem to be better explained by behavioural factors than by assuming investors are all and always rational. Its mood and reaction to new information tends to evolve over time. But over the full period under examination, the market's predicted spot price was optimistic, and its errors and revisions overreacted to news.

Fergal O'Connor is the current holder of the LBMA bursary and lectures in financial economics at York St. John Business School.

Dr Brian Lucey, Professor of Finance, Trinity College Dublin. Brian is Professor of Finance at Trinity College Dublin, and he also holds visiting positions at Glasgow Caledonian University and the University of Ljubjanja Slovenia. His research areas include the financial economics of precious metals, behavioural finance, international finance and financial integration and he is editor of two academic journals (International Review of Financial Analysis and Journal of Behavioural and Experimental Finance). He has published over 60 academic papers and several books.

Rand Refinery is the world's largest single site gold refining and smelting complex. Our diverse range of industry leading services includes smelting, refining and fabrication. With an extensive global network, Rand Refinery offers world-class state of the art logistics services for the transport of precious metals via land, sea and air. As the only LBMA referee in the southern hemisphere, we are able to deliver ethical, responsible and cost-effective solutions to a growing list of global clients. So whatever your gold related business needs are, you can rest assured that we have the experience and expertise required to turn your vision into reality.

RAND REFINERY

STRIVING FOR PERFECTION

Rand Refinery (Pty) Ltd, Refinery Road, Industries West, Germiston, 1401 | P.O. Box 565, Germiston, 1400, South Africa

Tel: +27 (0)11 418 9000 | Fax: +27 (0)11 418 9231 | Email: gold@gold.co.za | www.randrefinery.com

Market Dynamics: India, Asia and the World

By Shekhar Bhandari, Executive Vice President – Treasury and Business Head – Forex, Derivatives and Precious Metals, Kotak Mahindra Bank

This is an edited version of a presentation which Shekhar delivered at the LBMA/ LPPM conference in Rome on 30 September. He opines on market dynamics in Asia and the rest of the World and considers the impact that factors including recent government policy may have on the short-term and long-term demand for gold in India.

2012 Conference in Hong Kong

I specifically said in last year's presentation about India that the key issues affecting jewellery demand in the short-term are:

- Marriage
- Monsoon and harvest
- Government policy

India had a record number of marriages in 2013, largely due to the fact that there were 23% more auspicious days for marriage.

The monsoon season has been favourable, resulting in more money flowing directly into the hands of 65% of the Indian population.

The third factor, which is critical, is government policy and significant action has occurred. The Annual Report of the Reserve Bank of India (RBI) tells a cautionary tale for macroeconomic variables of risks from the global economy and pitfalls in domestic economic management. The RBI accounts indicate that earnings continued to be from domestic government securities rather than foreign income, which necessarily reflects the key risks in the economy at present – external sector vulnerability and currency risks. Quantitative Easing (QE3) has had an impact on both the external side and trade flows into India, Asia and the World.

Financials

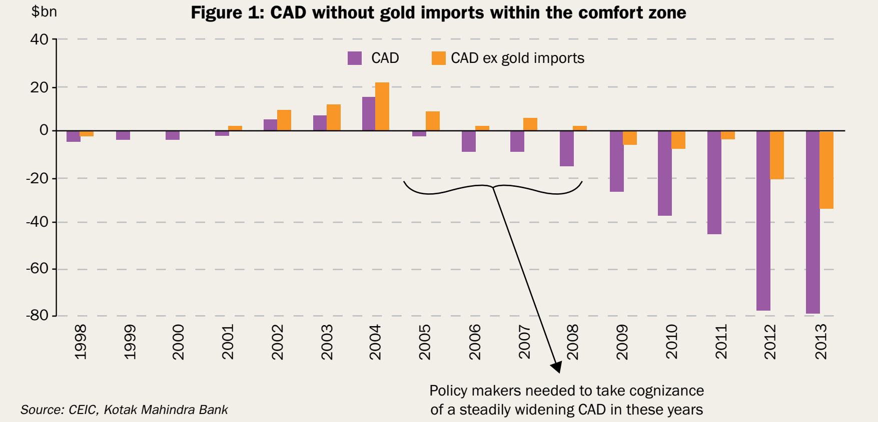
If I look at the country and where we can correlate gold, India trade imports are $500 billion and exports $300 billion, which means that there is a trade deficit of $200 billion. Out of the $200 billion, software and invisibles account for $118-$120 billion, which leaves a net deficit of $80 billion. This current account deficit of $80 billion in terms of the ratio to GDP turns out to be 5.1%-5.2%, which is in excess of the acceptable level of 3% for any economy. The Current Account Deficit (CAD) coupled with the Fiscal Deficit makes the currency of the country affected vulnerable.

We have seen challenges to the Indian currency for the last almost eight months and what the government is planning is a result of the challenges of an $80 billion deficit.

Interestingly, $60 billion out of the $80 billion trade deficit is directly attributable to gold alone. Gold is not monetised in India and China as it is kept in lockers and chests, which directly affects the circulation of money in the economy. We all understand that if the money is not utilised, the multiplier is not there and accordingly there is a drain on the monetary system.

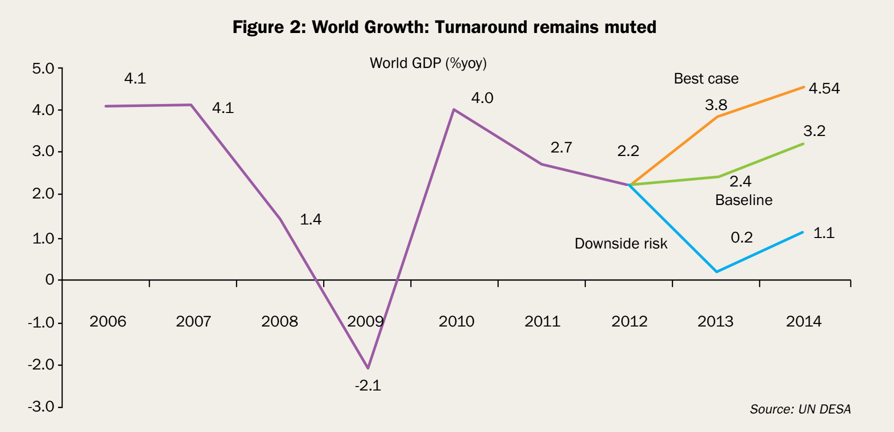
"We have seen challenges to the Indian currency for the last almost eight months and what the government is planning is a result of the challenges of an $80 billion deficit."

Figure 1: CAD without gold imports within the comfort zone



Source: CEIC, Kotak Mahindra Bank

World Growth



Global GDP (%yoy) - Estimates

	2012E	2013E
IMF	3.2	3.3
World Bank	2.3	2.4
EIU*	2.9	3.1
IIF	2.5	2.5
Bloomberg Consensus	2.1	2.2

on PPP basis
as on March 2013 on

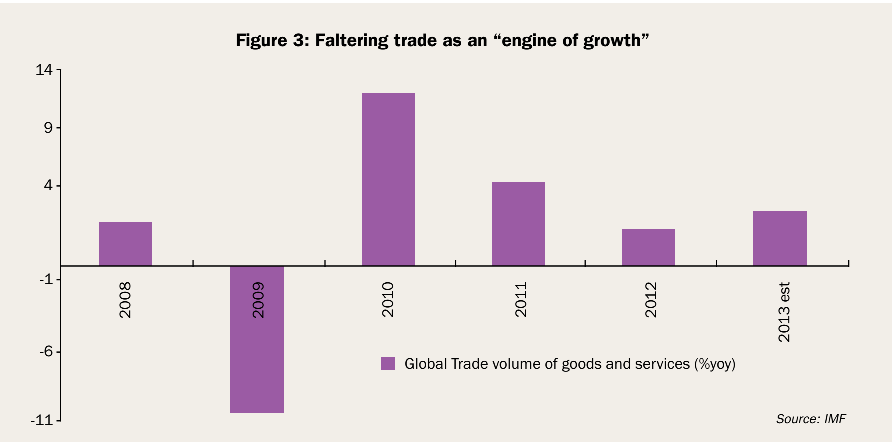
Sourse: IMF

The economic problems of developed countries flow directly into the economies of developing countries through:

- Weaker demand for exports, and
- Volatility in capital flows and commodity prices,

And accordingly turnaround remains muted, with a best-case scenario at 3.8% pa in 2013 and a worst-case scenario of 2.2% pa. Trade, which is a real measure of growth, is faltering. In spite of Quantitative Easing, trade has not grown, and with unwinding not easy to achieve, growth is proving a challenge.

> *"As for the current regulations, anybody who wants to import gold into the country has to compulsorily export 20% of that which they have imported."*



Current Regulations

Therefore, what we have seen, starting from around 17 January 2012, has been around 20 government circulars/changes/notifications, the last one on 14 August 2013, which have specified the focus on which the government is moving. As for the current regulations, anybody who wants to import gold into the country has to compulsorily export 20% of that which they have imported. This is at the importer level, not technically at the consumer level. As of now, if you were to have no exports and only imports, of say $60 billion, you would find that in order to import that $60 billion, you would need to export, on average, a minimum of $12 billion. Whatever changes we are seeing are to address the $80 billion current account deficit, I agree with the steps taken by the government, and the Indian jewellery and bullion industry have been quite supportive of the steps taken by the government.

Response to Regulations

The jewellery industry supported the country by jointly agreeing not to sell coins and bars, which are in the form of investment. The banks too supported this stance. Of the total Indian demand for gold of around 900 tonnes, 35% is for investment and 65% is for jewellery demand. Demand for jewellery remains unaffected as it is driven more by culture and consumer habits. However, there are alternatives for investment – Fixed Deposits, Mutual Funds, Small Savings, Public Provident Fund etc

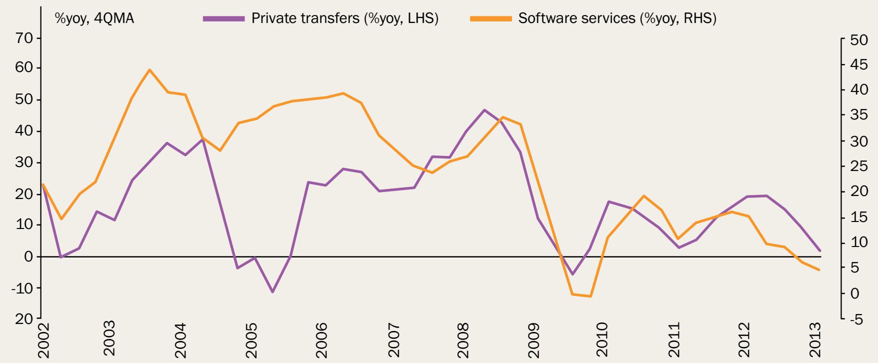
Therefore, to summarise, the government is planning to ensure that imports are kept to a bare minimum. Are there alternative solutions and will they be successful? I can say very clearly that government steps are a move in the right direction and are being taken to ensure that India's entire demand for gold can be met through internal accruals.

> *"The jewellery industry supported the country by jointly agreeing not to sell coins and bars, which are in the form of investment."*

India has, on average, 22,000-32,000 tonnes of accumulated gold. There have been varying estimates of the amount of accumulated gold over the last 100 years. But there is one important statistic – the accumulated gold within the temples of India is sufficient to meet the country's demand for at least 10 years. One can monetise idle gold deposits held within temples through the Gold Deposit Scheme (GDS). The gold deposit plans would see gold owners in India – the world's largest consumer of the metal – give their gold to a bank and earn interest in return. They would also enjoy a "guarantee" from the central bank for the gold's full return at the end of the deposit period.

> *"India has, on average, 22,000-32,000 tonnes of accumulated gold. There have been varying estimates of the amount of accumulated gold over the last 100 years. But there is one important statistic – the accumulated gold within the temples of India is sufficient to meet the country's demand for at least 10 years."*

Figure 4: The non-trade trade portion of CAD is also under stress



Source: Bloomberg, Kotak Mahindra Bank

The RBI would then lend the deposited gold to jewellery manufacturers, reducing the country's need for imported bullion and so easing pressure on the Rupee.

> *"To conclude, the most important issues affecting short-term demand, for me, are: government policy, the elections next year, somewhere around May 2014, the new policies of the government and the way it is able to think about the deficit and control it."*

Temples may require guarantees by the Indian government before parting with gold under the GDS but that should be workable. With Assured Return on GDS without the worries (and costs) of storage and insurance means that the temples would be more than willing to participate in the scheme. I guess it is a simple solution and initial transactions have been undertaken.

Many people have asked me why, up until now, it has not been thought of or been done before, but I guess you start thinking much more about sensitive issues when you are forced into a corner. I think the problem began in the period since 2009 when the CAD started ballooning. My presentation clearly shows a trajectory of CAD with and without gold. The idea is to share with you the thinking behind what drives the behaviour of the government. I think the central bank and the government are behaving in the right manner with the right perspective to ensure that the country's CAD and Fiscal Deficit are under control. They feel that gold is one of the assets that can have an elastic demand and that can be postponed. The bank and government are also thinking of innovative solutions in order to meet the demand. These can be in the form of options and in the way they are able to defer the importing of gold into the country.

Conclusion

To conclude, the most important issues affecting short-term demand, for me, are: government policy, the elections next year, somewhere around May 2014, the new policies of the government and the way it is able to think about the deficit and control it. In the last four months, the trade deficit has improved significantly and that is bringing a lot of positive energy. The rupee has appreciated by almost 13% from where it was a few months ago. We have a new Governor, and the right thoughts and actions are moving India forward in the right direction. However, in the long term, we feel that the demand for gold in India remains unaffected. Also, once the temple gold issues/ process is settled, 2016 may see zero imports of gold!

These are the issues that are impacting on the supply side. On the demand side in the long-term, India is more driven by culture and habit.

Shekhar Bhandari is the Business Head for Forex, Derivatives and Precious Metals in the Treasury division of Kotak Mahindra Bank

He joined Kotak Mahindra group in 1996 after completing his Chartered Accountancy where he was ranked 25th in India. Since then he has held positions of increasing responsibility across various group companies – Kotak Mahindra Finance Ltd, Kotak Mahindra Asset Management Company and Kotak Mahindra Old Mutual Life Insurance. Amongst several achievements, Shekhar led the entire formulation and turnaround project - "Turning Point" with McKinsey, and rolled out Change Management Process at branch, regional and national level in turn making Kotak Mahindra Old Mutual Life Insurance among top 3 in Agent Productivity in the Industry. He also set up the Compliance and Secretarial function at Kotak Mahindra Old Mutual Life Insurance.

His interests include Foreign Exchange, Precious Metals, Derivatives, Treasury, Economy, Risk Management, Distribution and Marketing of Financial Products. He is a regular speaker at various forums on these areas of interest.

He holds a Bachelor of Commerce with a further qualification of Associate member of the Institute of Chartered Accountants of India, Associate member of the Institute of Company Secretaries of India and graduate member of the Institute of Cost and Works Accountants of India.

Because you need precious metals solutions, we offer trusted global insight and expertise

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery services
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 207 444 9075
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

This communication is issued by Commerzbank. Commerzbank AG, London Branch is authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request. Copyright © Commerzbank AG 2013.

COMMERZBANK

The bank at your side

Algorithmic Trading Facts and Fantasies

By J. Scott Kerson, Head of Commodities, AHL/Man Systematic Strategies

This is an edited version of a presentation which Scott delivered at the LBMA/LPPM conference in Rome on 30 September. He explains how systematic traders like AHL use mathematical models in order to try to predict the future path of prices, and why AHL uses algorithmic execution to increase speed and efficiency, with an ultimate objective of increasing investor returns by driving down trading costs.

Introduction

Just by way of introduction, AHL/Man Systematic Strategies is the systematic trading arm of Man. We manage in the order of US$13.9 billion across a number of strategies and approximately a quarter of that is in physical commodities and commodity futures, with the vast majority being futures.

People often confuse 'systematic' with 'high frequency', so it's worth clarifying: some of what we do might be called higher frequency, but I definitely would not group our strategies under the broader 'High Frequency Trading' label. It is important to distinguish between the really fast folks, who deal in fractions of seconds, and the ones like us, who tend to deal in time slices ranging from hours to months, as opposed to fractions of seconds, because our respective trading behaviours and potential market impact may be very different.

I am going to talk about two things today. One is just a brief introduction to what systematic traders do, because there seems to be an air of unintended mystery and more than a little confusion about what systematic investment shops actually do. I will then spend most of our time talking about execution, and algorithmic execution in particular, because depending who you ask, algorithms are either the answer to all our prayers, or they are the devil incarnate and spell the end of markets as we know and love them.

What Do Systematic Traders Do?

An Anecdotal History of Systematic Trading

To understand what systematic traders do, it's useful to talk by way of an example and, to my way of thinking, the first properly systematic trader was actually a card counter by the name of Ed Thorp.

The history goes something like this: in 1954, IBM introduces the 704, the world's first commercially available machine incorporating indexing and floating point arithmetic. In 1956, a PhD student in mathematics named Ed Thorp has a realisation that is now very well understood, but which was, at that time, nothing short of revolutionary: a deck of cards has memory. For example, suppose I have a deck of cards with four aces, the odds of getting an ace on the first card is 4/52. But if I draw an ace on the first card, then the odds of getting an ace on the next card is 3/51, and that is a different number from 4/52. This means that by observing the history of the cards that have been drawn, I know something about the likelihood of the future path of cards that are yet to be drawn. Thorp combines this insight with the computational power of the 704 and estimates a bunch of rules – a systematic approach – for placing bets in Black Jack, where the bet size is a function of the conditional distribution of the deck. Interestingly, and perhaps relevant for systematic trading as an investment style, he goes to Las Vegas and doubles his money in the first weekend. Four years later, he goes on to publish his system under the titillating title of *Beat the Dealer* and changes the rules of Black Jack at every casino in the world virtually overnight. Card counters, and Thorp personally, are universally banished from casinos, so he applies his insights to stock markets. He reports, according to non-audited Wikipedia data, a 20%-plus compound annual return for the next 28 years, so apparently he was on to something good.

"To understand what systematic traders do, it's useful to talk by way of an example and, to my way of thinking, the first properly systematic trader was actually a card counter by the name of Ed Thorp."

Estimating the Composition of 'the Deck'

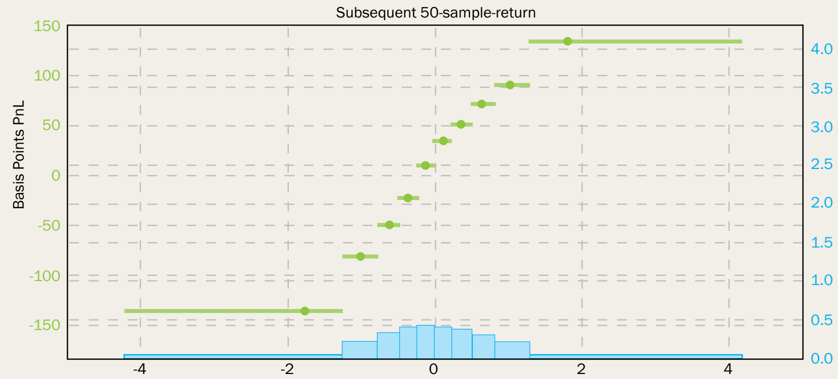
What does that mean for systematic trading? We are trying to predict the future path of prices based on their history. That is essentially the same problem Thorp needed to solve, with one key difference: we never know with certainty what the true composition of the deck – or rather the market – actually is. So, we start by observing market data instead of cards, and

that could mean prices, fundamentals or pretty much any data source you can think of that I can extract, store and process with a computer. We then filter that data according to a bunch of rules – here is the systematic approach – and build a forecast of what we believe the next period's return on a given contract may be. Precisely what this system does is not terribly important for this talk, but it is a live trading system that we are currently testing, because we think it has the potential to identify short-term fluctuations in prices. The system is called FASTCOMM, because it trades commodities and does so relatively quickly by our standards: it consumes data on energy markets on a time scale of minutes, and conditional upon observing certain patterns, it makes a forecast about what might happen.

> *"So why are we so interested in algorithmic execution? I'll show you some data on why 'algos' help in a minute, but for context, the primary objective of execution in the context of systematic investing is to drive down slippage."*

The blue bars on this graph are the strength of the signal, so a plus two is two standard deviations positive, or what we would view as essentially max positive; a minus two is the converse. The green bars are what we observe over the next 500 minutes, so about the equivalent of a trading day. What the pattern, from the lower left to the upper right, of the green bars tells us is that stronger signals are more likely to be associated with more positive returns, and weaker signals are more likely to be associated with more negative returns. This signal is then transformed into a desired position in lots, a ticket is generated and a trade is executed. Ultimately, this process is what systematic trading is all about.

Figure 1: Estimating the composition of "the deck"
The empirical response function for FASTCOMM



Why Do We Use Algorithmic Execution?

The Role of Automated Execution

Talking about FASTCOMM provides a natural segue into our other main topic, algorithmic execution. If I have a system that consumes a large amount of data and that wants to place a large number of trades relatively quickly, how is it going to execute those trades? It would be impractical at best for a human to trade even a single system like this for a handful of markets and yet we might (and in fact do) build dozens or even hundreds of such systems, which trade across hundreds of markets. The answer is, humans don't execute for FASTCOMM, machines do. In fact, the entire process, from observing the data to entering an order into the market, is done without any human involvement.

So why are we so interested in algorithmic execution? I'll show you some data on why 'algos' help in a minute, but for context, the primary objective of execution in the context of systematic investing is to drive down slippage. For every dollar that we lower our execution costs, we raise the net return to our investors, and making money for our investors is what this business is ultimately about.

So, that's the end game, who is going to win – the scary guy with the machine gun or the excitable humans in the pits? It's not quite that simple, but it's close.

The Rise of the Machines

However you slice the numbers, there is simply no getting away from the fact that the machines are taking over: looking at equity markets, we reckon that between 30% and 60% of all stocks are traded by algos, and the figure is likely to rise further. If you look for commodity futures, we estimate that the algo share – so not just electronic platforms, but the share of executions done by algos – has doubled from about 20% to about 40% in the last two years alone (according to internal AHL estimates). We believe there is a reasonable chance you could see that share increase by a similar amount again over the next couple of years. At the same time, high-touch execution, as in you and I dealing via instant message or voice, seems to be converging rapidly to zero for liquid futures.

The AHL Approach

How do we use the machines in practice? We have a fascinating system, whereby we create explicit competition between humans and the machines. We have two trading desks, one staffed by humans and one run by algos. Very small orders all go to the algos. And what we consider large orders all go to the humans. But for everything else in between, in what we call the matched band, we randomly allocate them between the algos and the humans, we track their P&L, and they compete for who can achieve the smallest implementation cost. When we measure execution P&L, or cost, we mean the difference between the price on

Alogorithmic execution - Who is going to win? Machines or humans?

the screen at the instant at which the order is received and the price at which the order is executed. The difference between those is slippage and that is the measuring stick for the race that we've put our human and machine traders in.

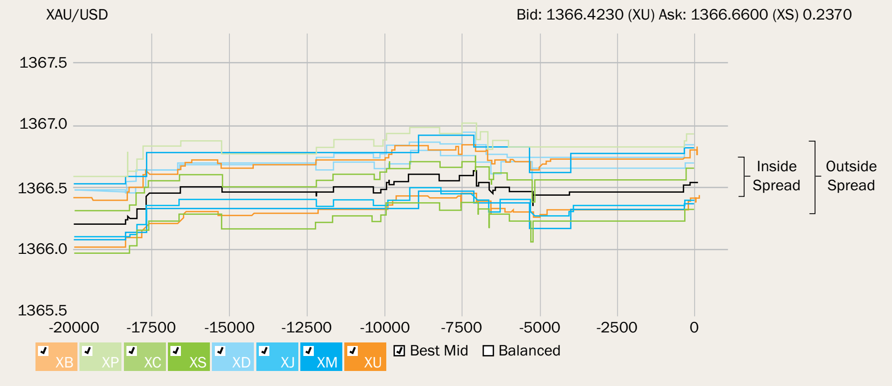
AHL's Evidence on Competitive Execution

In 27 of the 32 commodity markets that I looked at for this analysis, the machines beat the humans. That's about 80% of the time. In three out of four precious metals markets, the machines beat the humans, and in the fourth one, palladium, it is basically a wash. That's a relatively easy call to make (based on internal AHL estimates).

Electronic Competition in the Dealer Market

We have a pretty deeply held belief that we want to create proper incentives and competition wherever we can, so we apply this basic principle in other ways as well. For example, in the same way that we pit our humans against our machines, we also use our machines to pit dealers against dealers in order to create what we view as a more efficient marketplace.

Figure 2: Electronic competition in the dealer market - Improving Price Discovery
Sample view of internal order book - intraday cash gold on 21st Aug, 2013



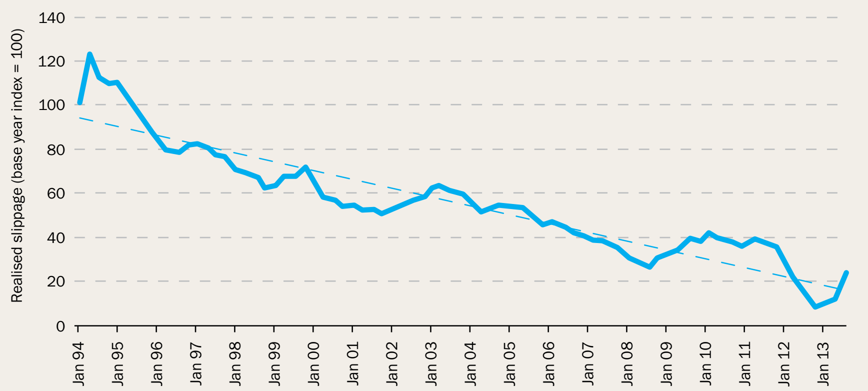
> *I have talked a lot about how good the machines are, but to be fair to the flesh and blood traders on our desk and amongst all of you, there are certain things that the machines really are not good at.*

Our internal order book for spot gold consists of about half a dozen dealers who stream prices into our system. I pulled a random screen shot from 21 August and found that if I were unlucky, and just happened to look for a bid and got the lowest bid, or I looked for an offer and got the highest offer, I would see something like a 60-cent bid/offer spread. If I called someone for a voice quote, I might get a 40-cent bid/offer spread. However, what I see via the machine is an inside spread of the best bid to the best offer of only 24 cents, which is the natural outcome of creating competition and using a machine to compile the resulting information. While the precise numbers vary, we see remarkable consistency in this general pattern.

Competition between Marketplaces

I have talked a lot about how good the machines are, but to be fair to the flesh and blood traders on our desk and amongst all of you, there are certain things that the machines really are not good at. For instance, as I mentioned earlier, orders that we classify as 'large' are generally directed to the physical (as opposed to virtual) trading desk. This is particularly important for relatively illiquid markets, where we have observed that slippage tends to increase more rapidly with size and where the rate of increase tends to be worse for the machines than it does when the order is actively managed by a person. Some of our data on palladium would appear to support this general observation and demonstrate one of the ways in which both our human traders and our risk-taking counterparties have an opportunity to add value. When I'm only going to trade one, two, three lots at a clip, I can pretty much do that on the touch, at the bid or offer on the screen. But when sizes get significantly larger, that is when our traders will reach out to their counterparties and ask for a 'risk' price, where the counterparty offers us a firm price for a given size and assumes the execution risk from that point on. It turns out, in the case of palladium, that the machines are cheaper for little tickets, but beyond a certain size, our data says we incur less slippage by calling a dealer and getting for a risk price. It is crucial to understand that whilst the machines have a role, there are certain times when their ability to understand what is going on inevitably runs into challenges, and in times like that, we believe that old school, manual trade execution is still the best route.

Figure 3: The Final Result - Lower costs mean higher returns



The Final Result

So what does this all mean in the end, in terms of our ultimate goal of looking to obtain higher returns for our investors? If you look at the last 20 years of AHL's real-life trading, our estimated execution costs have come down by a somewhat astounding 80%. And if you look at just the latter portion of the chart, when we started imposing machine-human competition and increased use of algos, we think we've cut our slippage costs by about something of the order of a third, which is a fairly remarkable number and a positive result for our clients.

Scott Kerson, Head of Commodities for AHL/Man Systematic Strategies

Prior to joining Man, Scott ran a boutique consultancy focused on quantitative analysis and systematic trading strategies for the global commodity markets. Before launching his own business, he spent 15 years in commodities sales and trading, including primary responsibility for Barclays Global Investors' active commodities model; proprietary trader and senior quantitative analyst at commodity-specialist hedge funds Ospraie and Amaranth, and Managing Director and Head of Commodities Sales & Structuring for Deutsche Bank and Merrill Lynch.

He graduated with Highest Honours in Economics from the University of California (Santa Cruz) and received his Masters in Financial Economics, concentrating on econometrics and macroeconomics, from Duke University, USA.

The LBMA Precious Metals Conference 2014

9-11 November 2014
Westin Lima Hotel & Convention Centre
Lima
Peru

LBMA/LPPM Precious Metals Conference 2013 Review

By Aelred Connelly, Public Relations Officer, LBMA

The 2013 LBMA/LPPM Precious Metals Conference was held in Rome, from 29 September to 1 October. The conference continued to break attendance records for the fourth year in a row as the 2013 event attracted a total of more than 800 delegates (727 delegates excluding spouses), from more than 38 countries, with a record 316 separate companies represented. There was a record number of sessions this year owing to the addition of Parallel Sessions on the second day, which focused on Responsible Gold and complemented the usual main conference proceedings. This meant that we had a total of 57 speakers and session chairmen, another record, which Stewart Murray affectionately referred to as "Heinz 57". There was also a record 22 exhibitors advertising their products and services. This year's conference truly was a record-breaking event.

Stewart opened proceedings on a humorous note, referring to his favourite film, Monty Pythons', *The Life of Brian*, and specifically to the scene where a group of incompetent revolutionaries in first-century Palestine are complaining to a crowd about the Romans and questioning: *"What have the Romans ever done for us?"* One by one, the assembled crowd shout out a series of life-changing inventions introduced by the Romans. Finally, one of the revolutionaries ends the scene by saying: *"Well, apart from aqueducts, sanitation, irrigation, roads, medicine, education, health, wine, public baths, law and order, an efficient system of government.....what have the Romans ever done for us?"*

And if we ask the same question, as to what Italy has ever done for us from a precious metals perspective, the answer is equally impressive. The Italian association with jewellery can be traced back more than 3,000 years to the Etruscans, in the Tuscany region, a tradition that was continued by the Romans, who championed the use of gold jewellery as a reflection of their status in society. But the links with precious metals continued beyond the influence of the Romans. Much later, as both David Gornall and Stewart remarked in their opening addresses, between the 11th and 16th centuries, Venice stood at the crossroads of the European gold market, and in the intervening years, Italy became the biggest and best manufacturer of gold jewellery in the world. Whilst there has been a steady decline in the Italian jewellery market over the last 15 to 20 years, it still accounts for half of the jewellery production in Europe. And on the world stage, in terms of jewellery fabrication, it is still holding on to third position in the global rankings, even if the gap between it and the top two, India and China, is now wide. And, of course, there are Italy's substantial gold holdings, which at 2,452 tonnes currently ranks it as the fourth-largest official holder of gold in the world. So Italy, and more specifically Rome, was certainly a fitting place to hold the LBMA's 14th precious metals conference.

As is the case every year, media attention focused on the gold price predictions from conference delegates. On the first day of the 2012 LBMA/LPPM Conference in Hong Kong, delegates were extremely bullish in predicting that the gold price would be US$1,914 by the time of the 2013 Conference. The following day, they predicted a lower price of $1,849, indicating that discussions in the wings of the conference had perhaps caused a revision of delegates' bullish views. Hindsight really is a wonderful thing. It transpired that despite the downward adjustment of their forecasts, delegates were still some US$508 off the actual price of US$1,341. This year, LBMA/LPPM delegates predicted on the first day of the conference that the gold price will be US$1,423 at the time of the 2014 Precious Metals Conference in Lima (from 9 to 11 November). The following day, they predicted a lower price of $1,405, indicating that the conference speeches and discussions in the corridors had encouraged them to a take a more pessimistic view of the gold price. Delegates also gave the following predictions for the price of the other three metals at the time of the next conference: Silver $25.00, Platinum $1,675.3 and Palladium $837.30. We will be publishing the LBMA's Annual Precious Metals Forecast Survey in January 2014. Experts from the market participate in the Survey and will be asked to forecast the average price of the four metals during 2014. So it will be interesting to see whether their forecasts concur with those of the conference delegates.

The conference opened on the Sunday afternoon with the Informal Networking Reception, followed in the evening by the Welcome Reception, which was sponsored by the Confindustria Federorafi. After the first evening of networking, the Conference proceedings got underway.

The Opening Session featured two keynote speakers. First up was Salvatore Rossi, Director General of the Banca D'Italia, who spoke of the importance of the independence of central banks from government influence and the need for a well-designed banking union. His speech was followed by Francesco Papadia, Chairman of the Primary Collateralised Securities, who questioned the speed at which Europe reacted to the financial crisis and the challenges that still need to be overcome, such as the lack of growth and the divisions that persist between EU member states. Other highlights in a full programme included another first for the conference, a dedicated Central Bank Session, with no less than four speakers from the Central Banks of the UK, Germany, Argentina and France.

Three of the most entertaining and interesting speeches from the conference have been reproduced in this edition of the *Alchemist*. These are New Frontiers in *Systematic Commodities* Trading by Scott Kerson, AHL/Man Systematic Strategies; *Market Dynamics – India, Asia and the World* by Shekhar Bhandari, Kotak Mahindra Bank Limited; and *Platinum and Palladium Availability* by Walter deWet, Standard Bank plc.

The transcripts from all the other speeches delivered at the conference are also available now on the LBMA's website.

The most highly rated session from the conference was the Panel Session: *Is the Bull Market Over?*, which was chaired by the inimitable Professor Brian Lucey from Trinity College, Dublin. This session rather unsurprisingly also featured the favourite speaker, Andy Smith, who is a freelance analyst. Perhaps this independence allows Andy more freedom to express his colourful views. Not afraid to stick his head above the parapet, Andy received a 1 oz gold bar for his efforts, which was kindly donated by PAMP. This year, for the first time, there was also a first prize for the best booth or exhibitor. This year's exhibitors added tremendously to the interest, information and value of the conference proceedings and so it was no mean feat to choose a winner. Having agonised over the beauty parade, the judges declared Deutsche Bank as the winner, which earned the exhibitors the prize of a silver coaster. A prize of an iPad mini, kindly donated by G4S, was also awarded at random to one of the delegates. Larysa Galyapa from the Central Bank of Ukraine was the lucky winner.

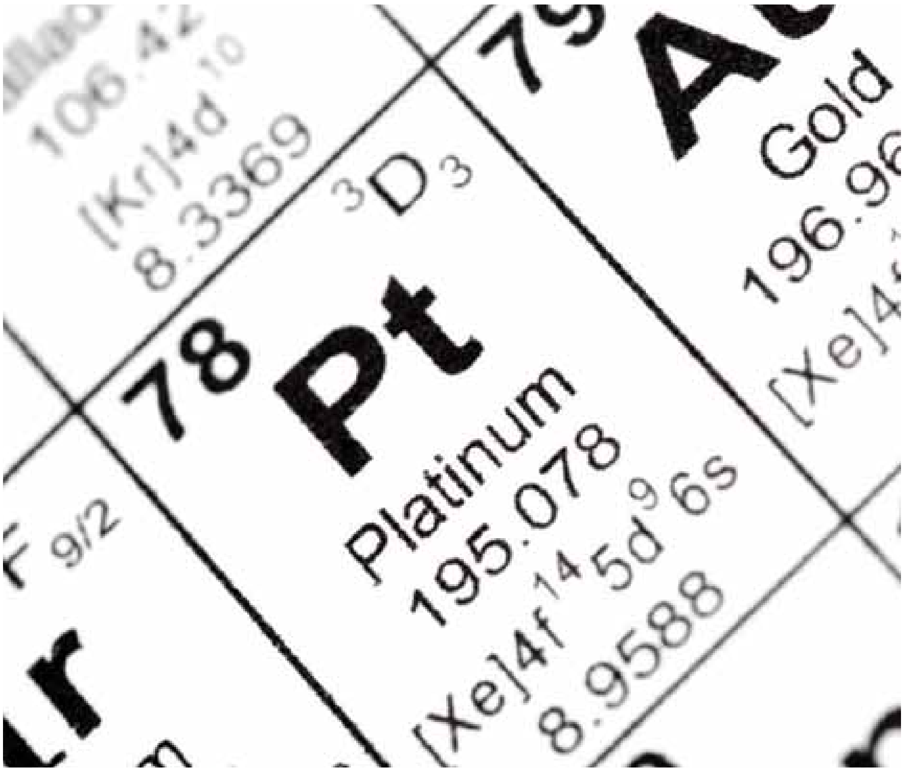
The LBMA would like to extend its congratulations and thanks to all the speakers, sponsors, exhibitors and delegates who participated at the conference. Special thanks should also go to Italpreziosi, who not only sponsored a fabulous fashion show at the conference dinner but also put on a tremendous exhibition of jewellery through the ages. Equally fascinating was Degussa's collection of gold and silver artefacts, which offered delegates the opportunity to take a time journey through four thousand years of precious metals history.

The LBMA's Public Affairs Committee, who are responsible for organising the annual conference, are now turning their attention to organising the 2014 conference, which will take place in Lima, Peru, from 9 to 11 November. One of the things that the Committee will be considering is the feedback from delegates attending this year's conference. It was a great and successful conference in Rome, but there is always room for improvement and we will be working hard to ensure that next year's conference is even better than ever. We hope to see you there!

And on a final note, it would not be appropriate to be speaking about the conference without mentioning the retirement of Stewart Murray as Chief Executive of the LBMA. Stewart is synonymous with the LBMA conference, having attended all 14 conferences since the first on in Dubai in 2000. In his opening remarks at the conference in Rome, David Gornall paid tribute to the vast knowledge and dedication that Stewart has contributed to the work of the association. He truly has been a great ambassador for the London bullion market. Whilst the Rome conference marked his last conference as Chief Executive, Stewart will not retire quite yet. He will be putting his knowledge to good use as a consultant to the LBMA on the Good Delivery List.

Platinum and Palladium Availability

By Walter de Wet, Head of Commodity Research, Standard Bank plc



This is an edited version of the presentation which Walter delivered at the LBMA/LPPM conference in Rome on the 1 October. He considers the key themes which are expected to impact on the inventories and availability of platinum and palladium. With significant deficits forecast for both metals he predicts that prices will increase, but it is expected that the upside will take time to feed through.

Introduction

Thank you, and thanks for the opportunity to speak at the Conference, it is a real privilege. My title is 'Platinum and Palladium Availability' and there is a subtitle: 'Upside but not straightforward'. In a nutshell, the general market consensus is that the platinum and palladium markets are in deficit. We agree, and we think there will be deficits out to 2017. We forecast deficits for the platinum market of more than 450,000 ounces in 2014, with the deficit decreasing slightly in 2016. Nevertheless, it is structurally a deficit market. We also forecast substantial deficits for palladium of over 1.8 million ounces in 2014 and that the deficits will persist into 2016.

Despite forecasts for relatively large deficits for platinum and even bigger deficits for palladium, the market does not really seem to trade as a tight market. There are several signs of this. Firstly, the PGM basket price is cutting into the cost curve. Secondly, if you look at lease rates, sponge ingot discounts and so on, and you look at where platinum and palladium are trading, one has to ask why this is happening if market consensus is for large deficits in both markets going forward.

We have spent a huge amount of time over the past 12 months analysing above-ground inventory for platinum and palladium. We came to the conclusion that most likely there is more above-ground inventory than the market anticipates. In our view, that is not necessarily bearish from a long-term strategic perspective, because as I have mentioned, we think there will be deficits, but from a more tactical perspective, we think that you probably need to wait longer before you will see the upside.

Signals of metal availability

I will not go through the usual demand and supply balances for platinum and palladium in this session, but instead touch on key themes we think are relevant in platinum and palladium. Below are a few observations from the market and why we think some questions need to be answered.

China demand

First of all, as with many other commodities, what China does remains key. China is the biggest jewellery consumer for platinum, consuming almost 70% of platinum jewellery in the world, and demand from this country is important. Recently, we have been seeing platinum imports into China becoming much more price sensitive than before, and given that jewellery demand is the swing demand for platinum, the growing price sensitivity could cap prices for the time being. China is also a growing user of palladium in autocatalysts. In this regard, when one looks at imports of palladium versus vehicle production data, questions are being raised about how much palladium China recycles.

ETFs

The South African ABSA physically backed ETF was launched in May this year. Since then, we have seen almost 800,000 ounces of platinum being taken out of the market via ETFs, and the platinum price is actually lower now than at the start of May. This is another signal that maybe the market is not yet as tight as we would like it to be. Although we have not seen the launch of a South African physically backed palladium ETF yet, and I guess the jury is out as to what will happen there, the outcome after a few months may be the same as for platinum.

Lease rates

There are other signals in the market that tell us, at least on the consumer side, that there are no major issues about the supply of platinum and palladium yet. One of the areas you can look at is lease rates, which remain near zero. They have not moved at all over the past 24 months, despite large-scale strikes and production losses in South Africa.

> *"There are other signals in the market that tell us, at least on the consumer side, that there are no major issues about the supply of platinum and palladium yet."*

Sponge versus Ingots

We see a lack in tightness in other areas too. For example, platinum sponge has not traded at a premium to ingots for a long while. Palladium every now and then pops into a premium, but

generally speaking, it remains at a discount to ingots. Once again, this signals industrial demand, or at least industrial users are not necessarily too concerned about this yet.

Inventory estimates

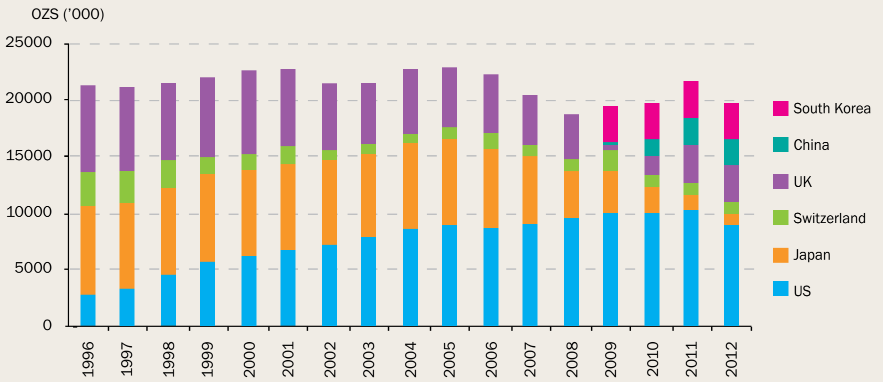
As a result of where prices are sitting and what we observe in the market, we have spent a huge amount of time tracking through trade data going back to 1988. We have tried to reconcile import and export data for many countries with actual amounts consumed, mine supply, recycling, etc., to determine if indeed there are inventories around and, if there are any, how much they are and where are the possible locations.

To make a long story short, after a lot of work and data analysis, we came to the conclusion that in terms of days' consumption, we think platinum above-ground inventories are about 1,000 days, or about three years' worth of consumption. In general, we believe this is more than market consensus estimates. For palladium, we think it is slightly less, just below 900 days. Once again, relative to platinum, it is probably a tighter market in terms of days' consumption, but nevertheless quite a large amount of inventory that can be drawn down. This inventory that we calculate accounts for metal consumed in manufacturing and industrial usage such as autocats, i.e. above-ground inventory estimates would for example exclude metal contained in autocats. However, our inventory estimates would include investment holdings such as ETFs.

Platinum inventories

In terms of platinum above-ground inventories, we think in absolute terms that platinum inventories are just over 19 million ounces. Most of it we believe is in the US, although we do think there are sizable amounts in the London and Zurich vaults, and some in Japan. We also think there are some strategic stockpiles in China, and possibly in South Korea too (Figure 1).

Figure 1: Platinum above-ground inventory



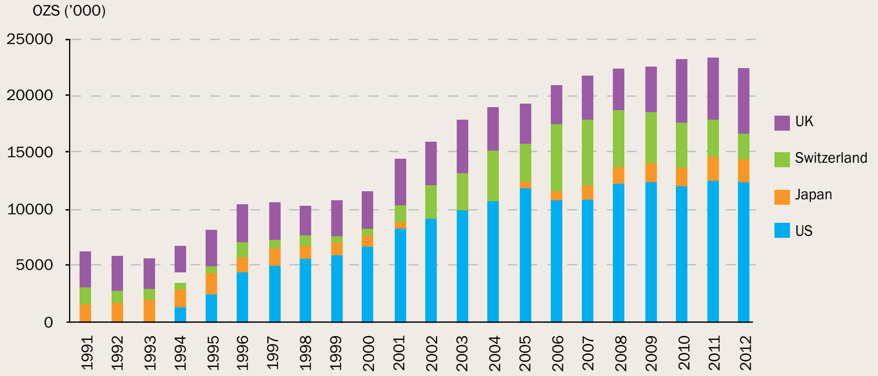
Source: Standard Bank Research

Palladium inventories

In the case of palladium, we think it is slightly higher in terms of absolute amounts and lower in terms of days' consumption: around about 890 days and around about 23 million ounces.

For palladium too, we believe most of the inventory sits in the US (Figure 2). A lot of this inventory has come out of Russia since 1995. If you look at how the trade data in the US has evolved over time, a lot of metal, more than 1 million ounces a year, between 1995 and 2003/4 has gone into the US. We think even after accounting for what is being produced and consumed in the US, there is still a lot of metal around.

Figure 2: Palladium above-ground inventory



Source: Standard Bank Research

Russian stockpiles

Leading on to the next question that always pops up: how much are the Russian stockpiles? We do not account for Russian stockpiles, palladium stockpiles specifically, for the simple reason that we do not know. However, we do think to a large extent that Russian stockpiles are probably not as relevant as they were in the past, simply because a lot of the inventory is outside Russia already.

To double-check our type of analysis, we have tracked through trade data and actual consumption data and recycling data, and so on. However, we followed a different approach too, where we just built our own demand and supply series since about 1930, going back to various data sources such as USGS data, and we came up with roughly similar numbers, but slightly lower than our official estimates quoted above.

This alternative where we built our own supply and demand series over time comes to around 16 million ounces for platinum as opposed to round about 19 million ounces using trade data. For palladium, it is a very similar profile, also slightly lower. Nevertheless, we prefer to work with the trade data simply because it gives us much more colour in terms of where inventory potentially is.

You can argue whether a difference between 16 million and 19 million ounces of inventory, e.g. for platinum, is relevant. I think at least for the time being, 3 or 4 million ounces do not necessarily matter. Of course, five or six years down the line, it might.

"This alternative where we built our own supply and demand series over time comes to around 16 million ounces for platinum as opposed to round about 19 million ounces using trade data. For palladium, it is a very similar profile, also slightly lower."

Is it feasible in money terms that this much inventory can be held? We compare our estimates of above-ground inventory for platinum and palladium to the value of ETF holdings for gold. The value of gold ETF holdings at the end of 2012 was $141billion. In comparison, the total value of our above-ground inventory estimates for platinum at the end of 2012 would be $30.45billion and for palladium $14.40billion. To us, it is significant that the total platinum and palladium above-ground inventories in dollar terms are much smaller in value than total gold ETF holdings – and gold ETF holdings are only a subset of gold above-ground inventory.

Who holds the inventory and what is its availability?

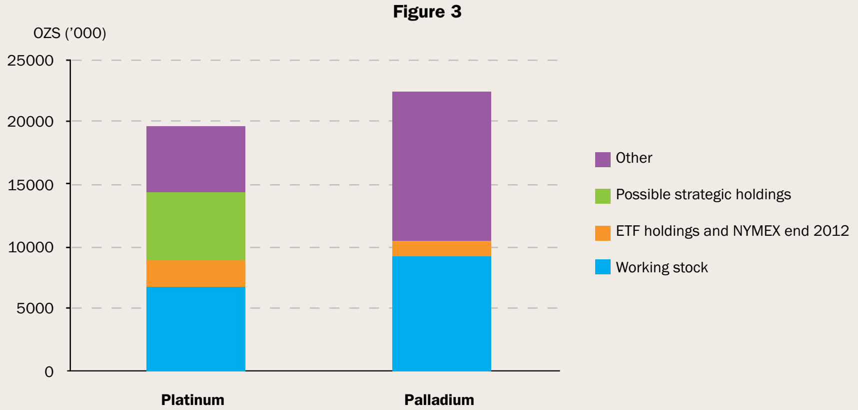
The final question is who actually holds this metal. Of course, an investor is not going to tell you 'I own 3 million ounces of palladium', even though we tried to ask some. However, we did quite a lot of analysis on this, speaking to a lot of people. We do think that industry stockpiles, including closed loop metal users such as refineries, glassmakers and so on, do sit on round about a third of the inventory (Figure 3).

Then, there is ETF holdings, which of course have increased quite a bit since the end of 2012, especially on the platinum side. We also believe that there are about 2.6million ounces of platinum inventory in China, some of which may be strategic stockpiles. We also think there could be more than 3 million ounces in South Korea.

recycling coming through by 2019 from China and other EM markets as their current auto fleets start to age. If you feed that into our supply and demand balances, we still get a substantial drawdown in inventories until 2019, irrespective of our high estimate of above-ground inventory.

In terms of absolute numbers, we think we are going to see around 7 million ounces of above-ground inventory by the end of 2019, going into 2020 – down from our current estimate of 23 million ounces. But you really need to look at palladium inventory in terms of days' consumption to appreciate this number. By 2019, above-ground inventory could then be around 250 to 280 days' worth of demand given our drawdown profile. The market will only settle in 2020/2021, and we do think that palladium has the potential in 2018/2019 to tighten up quite substantially.

Figure 3



Source: Standard Bank Research

One can argue how much of the inventory is available to the market. Ultimately, all metal is available at a certain price, but generally, we believe the total inventory amount we estimate would not come to the market easily, especially metal that is held as working stock and strategic stockpiles, and of course ETF holdings. This would also imply that the market is perhaps tighter than what our total headline inventory numbers would suggest.

However, irrespective of how much of our estimated stockpiles are available to the market or not, we think from a tactical perspective, one probably needs to wait longer before there will be a substantial, and sustainable, increase in platinum and palladium prices.

The longer-term strategic view

We also have to look at the longer-term strategic perspective. We know that palladium recycling is set to rise given that a large part of palladium demand comes from autocats, but we also think recycling is probably not going to rise fast enough to offset deficits.

Only by 2019 could recycling be high enough to start balancing the growing demand and lack of supply. We should see a lot of palladium

It is also worth pointing out that in terms of day's consumption, we could be at lower levels by 2019 than the levels of inventory we observed in 2001, when the palladium market was essentially cornered. In 2001, we put the total above-ground inventory for palladium at around 400 days' worth of consumption.

> *" We also have to look at the longer-term strategic perspective. We know that palladium recycling is set to rise given that a large part of palladium demand comes from autocats, but we also think recycling is probably not going to rise fast enough to offset deficits. "*

Lastly, and we believe very importantly, all of the above estimates assume that technology stays roughly unchanged. But I can imagine that automakers will look at this type of drawdown profile for palladium inventories and see the potential supply crunch coming – even if it is a few years down the line. The tighter the market might get, as an economist, I would say the greater the risk that auto producers work harder at possible technologies to increase the substitution of palladium. We have seen this in other commodities, from rhodium to oil to even metals such as copper, where higher prices ultimately lead to either demand destruction or demand reduction through further substitution.

Apart from high inventories, another reason why we think that palladium might not rally on a sustainable basis as quickly as people anticipate is because we do have questions about the use and recycling of palladium, especially in China. Vehicle production in China is rising, while at the same time, if one looks at palladium import data into China, palladium imports have actually been on a steady decline. China can get its palladium from either importing or recycling. It does not have any mine supply. If one adds imported palladium to recycled palladium in China, and look at how many vehicles it produces, the data implies that either China does not have the loadings in their vehicles that they say they do, which we do not think is necessarily the case, or possibly they are recycling much more than we think. Either way, we think this is the next big question on the table – how much palladium does China recycle – and certainly we will spend a lot of time looking at this in the coming months.

Lastly, even if China recycles more than we think, it is worth pointing out that this is unlikely to change the deficits that we forecast to a degree where the longer-term outlook for the metal changes. However, from a tactical perspective, I certainly think that higher recycling volumes in China might cap upside for the time being.

Turning to platinum, and focusing on China once again. China is important because the country is the biggest consumer of platinum jewellery; it consumes round about 70% of platinum jewellery globally. Jewellery demand does make up round about 35% of total platinum demand. This jewellery demand is typically the swing demand that we get. When the platinum price is low, jewellery demand increases, and when the platinum price is high, jewellery demand declines.

Since early 2012, as the platinum price has risen, imports of platinum into China have generally declined and vice versa when the platinum price has declined. This was not observed before 2012, where import data from China indicated that the country imported platinum irrespective of price. We think this price sensitivity has increased in recent months, because according to our estimates, between 2009 and 2012, China has built some stockpiles that allow the country in general to be more patient in buying metal at lower price levels. As a result, jewellery swing demand may cap upside for platinum prices to

a greater extent than it did before. We also look at recycling and think it too can increase quite substantially in coming years as is the case with palladium. Part of it will be jewellery and part of it will be autocats.

> *"Our estimates of platinum and palladium above-ground inventory are high. And as a result, from a tactical perspective, we believe one needs to be more patient in expecting sustainable upside in both platinum and palladium."*

For platinum, in our inventory draw down estimates, in terms of days' consumption, we do not think the market will necessarily be as tight over the next couple of years, or at least not as tight as palladium. Nevertheless, it certainly looks better a few years down the road than it is looking now. By 2018, we estimate platinum inventory would be around 600 days' consumption. But once again, keep in mind that we also believe that not all inventory is readily available to the market. That said, as with palladium, we believe one might need to wait longer before one gets very bullish on especially platinum, not only because we estimate above-ground inventory to be high, but also because we have noticed that platinum demand in China has become much more price-sensitive in recent months.

Outlook

Our estimates of platinum and palladium above-ground inventory are high. And as a result, from a tactical perspective, we believe one needs to be more patient in expecting sustainable upside in both platinum and palladium. Strategically, we also point out that not all of the metal is necessarily available to the market and that with our deficit forecasts for both metals pointing to tighter markets, prices will ultimately need to rise. But once again, we don't see that happening just yet.

Mr Walter de Wet, Head of Commodity Research, Standard Bank Plc

Walter joined Standard Bank in 2007 as Head of Commodities Research. As part of his current duties he interacts with corporate clients, institutional investors and hedge funds across the globe. Together with the rest of the team he performs research and provides strategic advice on the global commodities markets. The team covers base metals, precious metals, bulk commodities and energy. Walter's specific area of focus is precious metals.

The commodities research team draws substantial knowledge and market insights from Standard Bank's global presence in the physical commodity markets in both precious- and base metals.

Walter holds a PhD in Econometrics. He is also a Chartered Financial Analyst.

LBMA ANNUAL PARTY

Thursday 6th March 2014

18:00 until late

Café de Paris
3 Coventry Street,
Piccadilly,
London,
W1D 6BL

The theme of the party is 'The Great Gatsby'
1920s dress encouraged
www.cafedeparis.com/corporate/contact

Members & Associates only
Registration opens in January 2014
contact events@lbma.org.uk

MALCA-AMIT

SPECIALISTS IN SECURE LOGISTICS AND VAULTING, LBMA APPROVED WEIGHERS, VAULT NETWORKS IN LONDON, NEW YORK, SINGAPORE, HONG KONG, ZURICH AND GROWING… SO GROW WITH US…

For information or enquiries please contact
info.bullion@malca-amit.com
or call our UK office on +44 2088149850
www.malcaamit.com

MALCA-AMIT
DELIVERING ABSOLUTE PEACE OF MIND

The LBMA Rings the NYSE Closing Bell

By Aelred Connelly, Public Relations Officer, LBMA

On the 20 September 2013, the LBMA rang the closing bell at the New York Stock Exchange (NYSE). The LBMA is greatly indebted to Jennifer Ropiak (the LBMA member contact at NYSE Liffe US) who secured the invitation from the Exchange for the LBMA to ring the closing bell. This unique opportunity to be part of the history of the NYSE was extended to friends of the LBMA who wished to attend. It is regarded as a great privilege to ring the closing bell. Many famous people have had the honour of doing so including Joe DiMaggio, Ronald Reagan, Nelson Mandela, Hilary Clinton, Mohammed Ali, Michael Phelps, Patrick Stewart and even Mickey Mouse. So the LBMA party was in esteemed company.

The trading floor of the NYSE.

History of the bell ringing event

The loud, distinctive sound of the trading floor bell is one of the most familiar features of the NYSE. There is one large bell in each of the four trading areas of the NYSE, which are operated synchronously from a single control. Each business day the opening bell sounds the beginning of trading at 09:30 and the closing bell signals the end of trading at 16:00. Bells were first introduced onto the floor in the 1870s at the outset of continuous trading.

Originally, a Chinese Gong was used, but brass bells have been used since 1903 when the Exchange moved to its current location at 18 Broad Street, New York, a magnificent building designed in the neoclassic style by architect George B. Post.

The G. S. Edwards Company of Norwalk, Connecticut manufactured the bells, each measuring 18 inches in diameter. By the late 1980s, the bells had begun to show signs of wear and tear, and the NYSE decided to refurbish them as well as having an extra bell made for contingency purposes. However, it was discovered that bells as large and loud as the Exchange's were no longer made by Edwards or indeed by any other bell company. But all was not lost and as a special favour, Edwards agreed to undertake the work, bringing many of its former employees out of retirement to handle the job.

While the work was being undertaken, an older, larger bell was discovered in the loft above the main trading floor. Measuring 24 inches in diameter, this giant bell, made in 1903, had probably been "retired" because it was too loud, even by the NYSE's standards. After being cleaned and refurbished, the bell was adjusted to tone down the sound. It now gleams on a platform above the trading floor, ready for use should it ever be called into action.

The LBMA party visit the NYSE Museum prior to the closing bell ceremony

The LBMA party and guests on the podium, pictured left to right are: Katarina Cvijovic (Standard Bank), Samuel Shikiar (Anne Dennison (Mitsui & Co. Precious Metals), Lynn Martin (NYSE Liffe US), Raj Kumar (Deutsche Bank), Dominik Bossart (Brinks, USA), Stewart Murray (LBMA), Mohammed Grimeh (Standard Chartered Bank), Ruth Crowell (LBMA), Tim Dinenny (ScotiaBank), Peter Smith (JP Morgan Chase), Jennifer Ropiak (NYSE Liffe US), Christine Gilfillan (UBS), Paul Voller (HSBC), Unidentified and Grant Angwin (Johnson Matthey).

Timetable

The LBMA party arrived at the NYSE at 14:30 for a tour of the trading floor. The party consisted of Chief Executive and Deputy Chief Executive of the LBMA, Stewart Murray and Ruth Crowell, together with 14 podium guests and approximately 20 other guests who would view the event from the floor. At 15:15, the group moved to the Board Room on the 6th floor for refreshments. Lynn Martin, CEO of NYSE Liffe US then presented each of the podium guests with a gift presentation.

Gift from NYSE Liffe US to the podium guests.

In return, Stewart presented her and her colleagues with the LBMA's 25th anniversary silver medallion.

At 15:45, the LBMA and their guests moved excitedly to the bell podium whilst the other guests proceeded to the trading floor to observe the event. At 15 seconds before 16:00, Ruth pressed the button to ring the closing bell, and on the hour, Stewart brought the hammer down on the gavel to signal the close of and the end of an historic event for the LBMA and its guests. The photo above captures this moment and the delirious clapping and cheering from the podium guests. It was certainly a day that none of them will ever forget, particularly for Stewart as he approaches stepping down from his role as Chief Executive.

Jennifer Ropiak, Senior Vice President, Precious Metals Derivatives, NYSE Liffe US, commented "We are appreciative of our relationship with the LBMA and of the value they provide to both the OTC and futures markets in precious metals. The LBMA provides structure to the worldwide market via the maintenance of the Good Delivery List, which Intercontinental Exchange / NYSE Liffe US was the first to license. We look forward to maintaining our Associate Membership as we grow our 33.2 oz. mini gold (YG) and 1,000 oz. mini silver (YI) futures volumes."

Stewart Murray, Ruth Crowell and the rest of the LBMA party await receipt of their gift from NYSE Liffe.

Regulation Update

– Responsible Gold Programme

By Ruth Crowell, Deputy Chief Executive, LBMA

Since the publication of the last *Alchemist*, the following refiners have successfully passed the LBMA's Responsible Gold Audit Programme:

- The Perth Mint Refinery, Newburn, Australia
- Chimet S.p.A, Arezzo, Italy
- Tokuriki Honten Co., Ltd, Shobumachi, Japan

The refiners listed above have successfully passed an LBMA independent third-party audit for 2012 production, confirming they comply with the Responsible Gold Guidance. The audit reviewed the refiners' production over a 12 month period. This process is on-going. The LBMA has received a significant number of audit reports in the last few weeks which will be reviewed to ensure they were carried out according to the LBMA policy. Many auditors for the remaining GD refiners are in the process of carrying out or submitting the audit results.

All Good Delivery Gold Refiners were given twelve months following their 2012 financial year close to undergo a Responsible Gold audit. For some refiners, this means submission by 31st March, 2014. The LBMA has encouraged refiners to undergo a Responsible Gold Audit as soon as possible, particularly if they have US clients who need to meet the conflict mineral rules for Dodd-Frank Section 1502.

Through mutual recognition of other industry initiatives, the LBMA also recognises that refiners have achieved compliance with the Responsible Gold Guidance by achieving either the Responsible Jewellery Council's Chain-of-Custody certification or Electronics Industry Citizenship Coalition (EICC) CFSI audit protocol.

Responsible Gold Guidance – Background

The LBMA has taken its role as accreditor of the world's gold refiners and expanded the scope of its requirements, to include OECD Due Diligence, by the creation of the Responsible Gold Guidance. The Guidance operationalises and extends the OECD Gold Supplement for refiners and builds on existing Anti-Money Laundering and Know Your Customer management systems and auditing practices. It also makes what is a voluntary system (the OECD Guidance) mandatory for all LBMA Good Delivery gold refiners wishing to be accredited for the London Bullion Market. This framework is intended to assure investors and consumers that all London gold stocks are conflict-free due to compliance with an audited, conflict-free process. The Guidance however, goes beyond conflict and also addresses other responsible sourcing issues such as money laundering and terrorist financing.

ICGLR-OECD-UN GoE Joint Forum on Responsible Mineral Supply Chains

The next OECD meeting on Responsible Mineral Supply Chains will take place in Paris, during the period 24-26 May. The LBMA will update Members and Refiners as to the schedule of the meeting when it is announced.

Access daily LBMA gold and silver prices direct from LME data distributors

From $15 per user, per month you can now access 5pm gold and silver data from the London Bullion Market Association's forward market makers.

Data sets include:

- Spot prices
- Forward rates – out to 10 years for gold and 3 years for silver
- Gold IRS – 12 months out to 10 years

Accessing the data

Subscribe to the full LBMA data set via LME's licensed data distributors.

Visit www.lme.com/LBMAdataset or www.lbma.org.uk

LBMA

Nothing in this document constitutes an offer or a solicitation of an offer to buy or sell any security or other financial instrument or constitutes any investment advice or recommendation of any security or other financial instrument. To the best of the LME's knowledge and belief, statements made are correct at the time of going to press. The LME accepts no liability for the accuracy of any statement or representation. The London Bullion Market Association (LBMA) licences the distribution rights for the Gold Forward Curve and related products (the "LBMA products") to the LME. All rights in the LBMA Products are retained by the LBMA.
The LBMA Products are available to the LME on an "as is" basis and as such, no representation, warranty or condition, express or implied, statutory or otherwise is given or assumed by LME. © The London Metal Exchange. A member of HKEx Group. No portion of this publication may be reproduced without written consent.
The London Metal Exchange, 56 Leadenhall Street, London, EC3A 2DX. Telephone +44 (0)20 7264 5555, www.lme.com

LONDON METAL EXCHANGE

DIARY OF EVENTS 2014

FEBRUARY
11-13
Russia & CIS Precious Metals Summit
Moscow, Russia
www.adamsmithconferences.com/AS22525P

MARCH
6
LBMA Annual Party
Café de Paris,
London, UK

APRIL
6-7
Dubai Precious Metals Conference 2014
Dubai, UAE
www.dpmc.ae/

8-11
Denver European Gold Forum
Zurich, Switzerland
www.europeangoldforum.org/egf13/

MAY
12-13
Metals & Minerals Conference
New York, USA
www.metalsandmineralsevents.com/ny

19-23
LPPM Platinum Week
London, UK

20-22
11th International Gold & Silver Symposium
The Westin Lima Hotel & Convention Centre
Lima, Peru

24-26
OECD Forum on Responsible Mineral Supply Chains
Paris, France

29-30
Hong Kong Precious Metals Summit
Hong Kong, China
www.precioussummit.com/

JUNE
7-10
IPMI 38th Conference
JW Marriott Grande Lakes,
Orlando, Florida
www.ipmi.org/conf_detail.cfm?id=35

AUGUST
4-6
Diggers & Dealers Forum 2014
Kalgoorlie, Australia
www.diggersndealers.com.au/

11-14
XII International Platinum Symposium
Yekatennburg, Russia
http://conf.uran.ru/default.aspx?cid=12ips

SEPTEMBER
14-17
Denver Gold Forum 2014
Hyatt Agency, Denver, CO, USA
www.denvergold.org/gold-forums/

17
CME Group Precious Metals Dinner
New York, NY
www.cmegroup.com/metals

18
IPMI's 2nd NY Platinum Dinner
New York Place Hotel, NY
http://www.ipmi.org/

OCTOBER
20-23
LME Week
London, UK
www.lme.com/lmeweek.asp

NOVEMBER
9-11
LBMA Precious Metals Conference 2014
Western Lima Hotel & Convention Centre, Lima, Peru
www.lbma.org.uk

XMAS AND NEW YEAR REMINDER

London Precious Metals Clearing Limited

London Precious Metals Clearing Limited has announced that the cut-off time for its Members accepting client instructions for the transfer of gold, silver, platinum and palladium on Christmas Eve, Tuesday 24 December and New Year's Eve, Tuesday 31 December, 2013, will be 14:00 London Time"

London Gold Market Fixing Limited

The London Gold Market Fixing Limited has announced that there will be no afternoon gold fixings on Christmas Eve, Tuesday 24 December and New Year's Eve, Tuesday 31 December, 2013.

facing facts

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS and Janette Tourney, Research Analyst, Thomson Reuters GFMS

Producer Hedging

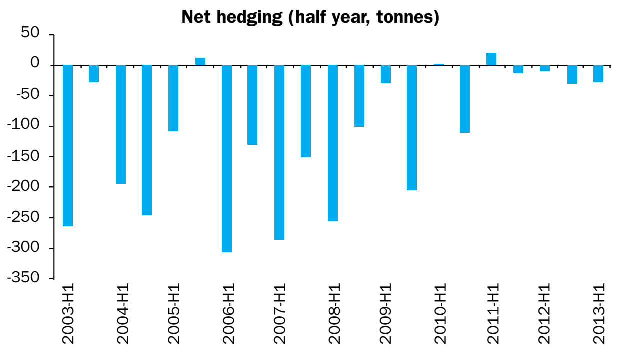
With the gold price having dropped by well over $300/oz in recent months (versus the start of the year), we have heard occasional hints suggesting a bounce in producer hedging enquiries and growing speculation that a return to producer hedging could soon be upon us. We haven't seen a barrage of evidence to support this yet, but it seems a timely point to review recent activity and posture views on the outlook.

De-hedging continued in the first half; we estimate a further 27 tonnes was removed from the delta-adjusted book, maintaining the trend of de-hedging seen over the last few years. Some producers have chosen to increase their hedge cover, and a number of new hedge agreements have been entered into over the course of this year. However, these have been modest in scale for the most part and outweighed by deliveries into existing agreements.

Earlier this year, Petropavlovsk entered into forward sales contracts totalling almost 500 koz of gold, over the period to June 2014. Petropavlovsk's contracts are, in aggregate, by some margin the largest new hedge position that has been reported during 2013, with other producers such as Minera Frisco, B2 Gold and OceanaGold also entering new hedges during H1 13, but on significantly smaller scales. Little new hedging activity has been reported during the second half of the year so far, exceptions being Norton Gold Fields and Evolution Mining, both of which entered into new forward sales agreements during the third quarter.

Offsetting this, a number of producers have taken the opportunity to close out hedge positions during the first half of this year, notably Crocodile Gold, which closed out its hedge book in the second quarter through early delivery into 270 koz of forward sales. Accelerated de-hedging has been more prevalent amongst Australian producers, as Australian dollar-denominated hedges have moved more sharply into the money during this year, providing more opportunity to close out contracts for a profit and pay down debt.

Despite the downward trend in the gold price, we have seen no evidence so far of a return to large-scale hedging activity. Instead, we have observed an industry-wide move towards cost containment as a means to protect margins. Some operations at the higher end of the cost curve have been divested (for example, Barrick's Yilgarn South assets), or have been targeted for early closure. Amongst smaller producers, the effects of the falling gold price have been more acute, with higher cost operations being put on care and maintenance. Over the last few years, costs for gold producers have risen dramatically, broadly in line with the increase in the gold price. One option for producers seeking to protect margins would be to hedge, but it seems that most gold producers are presently relying on aggressive cost-cutting (of both capital expenditure and operating costs) and portfolio rationalisation as the preferred strategy. To us, the message seems most clear from the gold majors, which continues to be that current management will avoid hedging primary production.



Source: Thomson Reuters GFMS

Investors' will has been instrumental in mining company strategy, both in terms of hedging and project development. Amongst the major producers, there has been a significant step back from large acquisitions and green field projects after a swathe of these have showed little sign of paying off in the medium term. Instead, there has been a call by shareholders for management to act as custodians of others' capital and, if investment opportunities are not compelling, to return cash. On the hedging side, we sense that although the staunch anti-hedging sentiment may have mellowed over the past year, the tone is certainly not one of enthusiasm, even for project finance, where other tools may be deemed more cost-efficient or appropriate means of accessing capital.

In addition to the factors above, we can attribute a handful of reasons for producers remaining reticent towards hedging in the current gold market. Firstly, the most favourable conditions in which to enter into new contracts are a long way in the past. In addition to the very obvious slide in the gold price, higher volatility has served to make option pricing less opportune. Largely a function of progressive rate cuts towards the zero bound post-2008, gold's contango remains at exceptionally low levels (indeed having turned negative on shorter tenures earlier in the year). Therefore, the forward premium that producers could achieve by selling forward is exceedingly lean, leaving the revenue enhancement argument far from compelling.

Overall, given the modest nature of the new hedge agreements that have been reported so far during 2013, together with the continuing trend towards de-hedging, we expect to see an overall decrease in the size of the global hedge book by the end of this year. Nevertheless, as the macro cycle continues to evolve and interest rates (and contango) pick up, some of the factors that make hedging more defensible return at a time when we expect gold prices to face further downward pressure. At this stage, we believe there is a decent prospect that producers will begin to grow the collective hedge book once again.

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS

Having joined GFMS Ltd as a Metals Analyst in 2005 to cover the mining sector, William was brought across to Thomson Reuters in GFMS' 2011 acquisition and holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. He has accountability for the mining team's research output of global production, mining costs and producer hedging research across the precious metals.

Janette Tourney, Research Analyst, Thomson Reuters GFMS

Janette joined Thomson Reuters GFMS in January 2013 as an Analyst within the Mine Economics team with a research remit across the precious metals mining products, specifically Mine Economics, as well as our annual Survey and forecast reports. She previously spent two years as a Mining Analyst at Vicarage Capital and holds a PhD in Geochemistry from the University of Edinburgh.

LBMA News

By Stewart Murray, Chief Executive, LBMA

MEMBERSHIP

On 8 November, JP Morgan Securities PLC was admitted as an Affiliate Member. Affiliate Membership is a form of Ordinary Membership which is available for companies that are affiliated to existing members. Affiliate members waive the right to vote at general meetings and to sponsor other applications, but otherwise, their status and membership benefits match those of other Ordinary Members.

On 29 November, Tullet Prebon was admitted as an Ordinary Member.

On 17 September, Gerrards (Precious Metals) Limited and Degussa Sonne/Mond Goldhandel Gmbh were admitted as Associates.

GOOD DELIVERY LIST

On 14 October, the silver refineries of Henan Jinli Gold and Lead Co., Ltd of China and MMTC-PAMP India Pvt Ltd were admitted to the Silver List.

COMMITTEES

Management Committee

The Management Committee held three meetings in the past quarter to review the work of the subcommittees described below.

As mentioned in the last edition of the *Alchemist*, the LBMA has been studying how the IOSCO benchmark principles could best be applied to GOFO and the end-of-day forward curves for gold and silver, which are based on the contributions of the LBMA's eight forward Market Makers. Following a meeting of the Market Makers together with the Regulatory Affairs Committee in November, the Management Committee agreed that an LBMA Benchmark Compliance Code should be developed. This will be based on a Gap Analysis prepared by Simmons & Simmons that was reviewed by the above-mentioned meeting. The Compliance Code will provide guidance both to contributors and to the LBMA Executive on the various aspects of compiling and publishing these indicators. It is perhaps worth noting here that the London gold and silver price fixings are not included in this project. These price indicators are owned and administered by separate companies – the London Gold Market Fixing Ltd and the London Silver Market Fixing Ltd.

Following a meeting held with representatives of the Singapore Bullion Market Association during the conference in Rome, the Committee decided that a bullion market forum should be held in Singapore in the first half of 2014. Similar meetings have been held in the past in Moscow, New Delhi and Shanghai to focus primarily on local bullion market issues. Further details will be circulated in due course.

The Committee has agreed that an oral history project focusing on the London bullion market should be undertaken by Dr Michele Blagg, who recently completed a Ph.D. on the Royal Mint Refinery. The project, entitled 'Voices of the London Bullion Market' will involve interviews with many of the leading participants, past and present, in the market. It should be completed by the end of 2014, when the resulting conclusions and reports will be published by the LBMA.

Noting the disastrous impact of the Haiyan typhoon on the Philippines, the Committee agreed to devote the LBMA's main charitable contribution for 2014 to the relief effort being mounted by the UK Disaster Emergency Committee.

Regulatory Affairs Committee

In addition to the discussions on benchmarks described above, the RAC focused on issues facing the bullion market as a result of the implementation of the US Dodd Frank Act and the various EU regulations and directives.

Physical Committee

In November, the Committee approved further changes to the Good Delivery Rules. These are mostly of a minor nature and have been made to clarify the procedures and rules to be followed by applicants and existing refiners. Full details can be obtained from the Good Delivery page on the LBMA website. One significant change is that the reference samples used for testing gold applicants (and also for the assay testing of 'four-nines' refiners) will weigh approximately 5 grams rather than 10 grams as previously.

Another aspect of Good Delivery applications that has been discussed by the Committee recently is the way that vault inspections are carried out. These involve a panel of three inspectors examining the 11 bars submitted by applicants for accreditation. In the past, what might be called the collegiate system was used, whereby the inspectors would discuss the bars before completing their reports for submission to the Executive. The Committee has decided that, in future, each inspector will be required to submit the report without consultation with the other inspectors. Another change is that inspectors will review both the accuracy of an applicant's bar weighings as well as the form of the associated weight list. The amended rules provide clarification on what should be included on weight lists accompanying commercial shipments and those prepared for the submission of bars by Good Delivery applicants. Finally, the Committee has formalised the procedure for appointing new inspectors – in effect, it is an apprenticeship system whereby an applicant must attend a number of vault inspections and submit satisfactory reports before being accepted.

Accurate weighing of Good Delivery bars is one of the most important functions of the vaults in London. GD silver bars have been weighed electronically in London (rather than on beam balances) for many years. But the vaults are always keen to look at electronic scales with improved accuracy and reproducibility. The vaults are now trialling a new balance and if this proves to offer a significant improvement, the specifications for silver balance shown in the Good Delivery Rules are likely to be changed.

Another item related to the vaults is the development of the Vault Operators Accreditation Scheme. With the assistance of the London vaults, good progress has been made and it is hoped that the scheme will be available for the online training and testing of vault staff in the second half of 2014.

The third Proficiency Testing Scheme for gold assayers will be initiated in January 2014. Previously, participation was limited to Good Delivery gold refiners, but this time round, the laboratories of LBMA supervisors will also be allowed to participate.

Another project on the Committee's agenda is the manufacture of the next gold reference material – known as AuRM3 – which is expected to be available for sale by the second quarter of 2014. Full details will be included in the next edition of the *Alchemist*.

Of course, the main role of the Physical Committee is in reviewing and recommending Good Delivery applications. At its meeting in November, the Committee had as many as six new applications (five for silver and one for gold) to consider. This is in addition to the seven applications that are currently being processed. In addition, there are six refiners which are currently working on applications that are expected to be submitted within the next six months.

One question related to these applications that has been discussed recently is whether Good Delivery refiners should be required to produce a certain quantity of GD bars in order to maintain their accreditation (or alternatively whether they should demonstrate their ability to cast these bars as part of the Proactive Monitoring testing procedure). Another possibility is that accredited refiners would have to demonstrate that their bars are traded internationally, in that facilitating such trades is

one of the main purposes of the Good Delivery system. Any refiner or other interested party with views on these ideas is encouraged to send them to the Chief Executive.

Public Affairs Committee
Following the Conference in Rome, the PAC reviewed the feedback received from delegates. The main comments received related to the size of the conference (which a number of delegates thought had become unmanageably large), the quality of the speakers and the cost, as well as the relative remoteness of the hotel. There were, of course, many positive comments, but these criticisms are very valuable to the PAC in the planning of the next conference, which will be held in Lima in November 2014. This will be the first time that the LBMA has held its conference in Latin America and represents the fulfilment of a promise made to the Peruvian industry in 2009 (when the financial crisis resulted in the conference being held in Edinburgh rather than Peru as had previously been planned).

The PAC has now turned its attention not only to the programme for Lima but also to the bullion market forum to be held in Singapore in the second quarter of 2014. Suggestions for topics for either of the main events to be held next year are always welcome.

Another event in which the LBMA was delighted to participate was the joint LPPM/LBMA cocktail party held in New York on 19 September. On the following day, the LBMA had the great honour of ringing the closing bell at the New York Stock Exchange (see the article on page 23).

At this time of year, the PAC reviews the arrangements for, and the participants in, the annual Precious Metals Forecast Survey. The forecasts will be published on the website as usual in early January.

Membership Committee
At its meeting in early December, the Committee discussed the first annual Associate Review, which was carried out in the fourth quarter. It involved the Executive writing to all the companies within the membership that had sponsored Associates to ask if they were willing and able to continue their support. While the majority of the Associates continued to receive the support of all three of their sponsors, a small number of them did not, usually because the original sponsor was no longer trading with them. The Committee considered these cases and decided how the Executive should respond (mostly by asking the Associates concerned to find new sponsors).

Finance Committee
At its recent meetings, the Finance Committee agreed the budget for the coming year which is expected to be in deficit, mostly because of the cost of developing the Vault Operators Accreditation Scheme described above. However, given the substantial surplus that the LBMA has built up in recent years, the Committee recommended no change in the membership subscriptions for 2014.

LBMA Staff
Stuart Playford resigned as Operations Director on 15 November and we thank him for his services to the LBMA during the past three years.

Jo Trivedi, who has been employed in the market research area for Johnson Matthey during the past nine years, will join the LBMA as Good Delivery Officer in January.

And finally, on a personal note….
This is the last LBMA News that I will write. It has been a privilege and mostly a pleasure to describe for *Alchemist* readers what has been happening at the LBMA each quarter during the past 14 years.

Market Moves

Colin Painter retires from Brink's
Colin Painter, senior Vault Manager, retired from Brink's on 31 October 2013. Colin started in the bullion market with J P Morgan in 1983 and joined Brink's in 1998. His expertise was valued as one of the LBMA's inspector of bars for GD purposes and he was also a member of the Vault Managers sub-committee. We wish him a long and happy retirement.

Kevin Crisp joins Heraeus Metals Germany
Kevin joined the Heraeus precious metals trading team on November 6 as a Senior Vice President. Kevin will be responsible for the global sales team, strengthening and expanding the division's sales activities worldwide. Kevin held several positions in the precious metals industry and brings more than 25 years of experience.

Changes at Metalor
Scott Morrison, former CEO of Metalor, was appointed as Chairman of Metalor Technologies International and Managing Director Mergers and Acquisitions of Metalor. Hubert Angleys, former CFO of Metalor, was promoted to CEO. These appointments took effect on August 15 2013, Patrick Arnegger has also joined Metalor as the new CFO of the Group.

Degussa acquires Sharps Pixley Ltd
Degussa Goldhandel (Gold Trade) Group acquired Sharps Pixley Ltd on the 5 November, one of the best-known bullion trading businesses based in London. Degussa will retain the experienced team under the leadership of the CEO of Sharps Pixley, Ross Norman. One of the first measures of the business will be the minting and casting of new gold and silver bars bearing the Sharps Pixley logo, thus bringing the logo of one of the oldest brands back to the bullion market

Looking Back, Looking Forward

Editorial Comment by Stewart Murray, Chief Executive, LBMA

I backward cast my e'e.
On prospects drear!
An' forward, tho' I canna see,
I guess an' fear!

Robert Burns – To a Mouse, On Turning Her Up In Her Nest With The Plough

It is my hope in writing this editorial that I will convince the reader that the Bullion Market can be a lot more positive about its past and future than was Robert Burns in 1785. When writing minutes or preparing papers for the many committees, working parties and miscellaneous groups within the LBMA, I normally try to persuade my colleagues to abjure the use of the first person, whether singular or plural. But as this editorial is written from a personal perspective, the occasional "I" will inevitably creep in. The reason for this is that I am going to look back to 1999 – the year I joined the LBMA – as well as looking forward to the challenges that my successor, Ruth Crowell, might be facing during the next decade. But first I would like to take this opportunity of putting my thanks and congratulations to Ruth on the record. Over the past seven years, she has achieved so much for the LBMA, not just in the areas of regulation and responsible gold guidance, where her renown in the wider market is richly deserved. But in addition, she has effected huge improvements in the public-facing aspects of the LBMA through the website, the Alchemist and above all the conference. I would not have wanted to do my job without the unstinting support that she has given me in the second half of my career with the LBMA.

I could go on ... but as stated above, this editorial is intended to provide a Janus-type perspective – looking back and looking forward at the LBMA's role and activities.

The significance of 1999 for the LBMA was not the appointment of a new Chief Executive in September that year (though it certainly was significant for me). Rather, it was the two key decisions, the first – made at an extraordinary general meeting in February of that year – to adopt a new constitution that would allow "international associates" to become part of the membership. The second, taken a few months later, was to organise a precious metals conference to be held, not in Europe, where the very successful FT Gold Conference had traditionally been held during the previous 20-odd years, but in Dubai, somewhat ironically the place where I had spent a lot of my time while employed at GFMS prior to joining the LBMA. When considering the way the conference has grown in recent years and the fantastic professionalism that our team has developed, I can never totally suppress a wry smile when I think of the way that first conference was put together "on a shoestring". But it was a success – then as now thanks to the efforts of the Public Affairs Committee – though in Dubai, they also had to staff the registration desk and do the photocopying! Above all, however, we had to thank the inimitable Maggie Nash – then just retired from the events team at JP Morgan and whom many readers will undoubtedly remember – for the success of our first conference and indeed the following three LBMA events.

It seems fair to claim that the conference helped to put the LBMA onto the world precious metals map, but this process was undoubtedly helped and accelerated by the new Associate category in the membership list from 2000 onwards. In that year, 16 Associates from 10 different countries became part of the LBMA and the number grew steadily, if less dramatically until, in 2010, the number of Associates exceeded the number of Ordinary Members. A further widening of the international dimension of the membership began in 2002, when the Management Committee agreed that banks whose bullion trading operations were outside the UK could join as Full Members. Nowadays, the admission of a member with a non-UK location is commonplace, but back then it only happened after extensive discussions with the UK VAT authorities (now known as HMRC) and the Financial Services Authority.

> *"It seems fair to claim that the conference helped to put the LBMA onto the world precious metals map, but this process was undoubtedly helped and accelerated by the new Associate category in the membership list from 2000 onwards."*

But turning now to what is commonly known as the "crown jewels" of the LBMA, namely the Good Delivery system, this too has seen major developments during the past 12 years, though of a quite different type. The fundamental purpose of the GD List has not changed: it is a list of the refiners and their bars that are accepted as Good Delivery in the London vaults, as indeed it has been since the Bank of England issued the first extremely short list in 1750. From the point of view of the Executive staff, the period from 2001 to 2003 saw a revolution in the way the system was administered. Before 2001, Good Delivery applications were processed by a combination of the "vaults" (in essence, the banks that provided the London market's clearing service) and the two referees, Engelhard CLAL and Johnson Matthey, which had for many years provided the technical support for the Good Delivery system. In December 2003, a new international panel of five referees was established and from then on, the Executive rather than the vaults and referees played the central role in the processing of applications. With the support of the Physical Committee and the new referees panel, the next decade saw the LBMA expanding the technical aspects of the Good Delivery work – the introduction of Proactive Monitoring, the biennial Assaying and Refining Seminar, the production of gold and silver reference materials, and most recently a proficiency testing scheme for gold assayers. Another important strand to this work has been the quantification of the physical acceptability of Good Delivery bars – a topic that will certainly continue into the future. Accurate weighing of these bars is of course fundamental, and after many years and attempts, the LBMA finally approved the use of an electronic scale as an alternative to the beam balance for weighing Good Delivery gold bars. I am sure that this kind of work will continue in the future – for the benefit of all participants in the bullion market.

But externally, and just as importantly, there has been an increase in the use of the List by other markets and exchanges. The LBMA is now willing to license the use of the List in this way as long as the licensee can demonstrate its standing in the market.

There are so many other interesting topics that I could describe if space were not limited: the LBMA's initiative in early 2009 to encourage the establishment of cleared gold forwards; the recent introduction of the daily gold and silver forward curves based on the contributions of the eight forward Market Makers; the securing of the future use of the troy ounce (when this was under threat in 2007) and ameliorating the impact of the EU's REACH legislation on the gold market.

The "R" in REACH stands of course for Regulation, which brings us firmly into the present era and dare I say also the future. To the surprise of many people outside the market, spot and forward trading in gold and silver is not a regulated activity in the UK, although the participants in the market are regulated. The wholesale markets in London (foreign exchange, money markets and bullion) have for many years relied on the NIPs (Non-Investment Products) Code as a form of self-regulation. All Members and Associates of the LBMA have to sign up to the letter and spirit of this Code. But

following the multiple crises of recent years, or more accurately the response of the authorities on both sides of the Atlantic, Regulation has become perhaps the most important topic on the LBMA's agenda. This was most clearly demonstrated by the need for us to respond to Section 1502 of the Dodd Frank Act in relation to conflict minerals by developing the Responsible Gold Guidance, with which all Good Delivery gold refiners must comply. Implementing IOSCO's principles for the production and maintenance of benchmarks is the topic of the moment. Regulation is undoubtedly going to be high on the LBMA's To do List in the years to come.

The LBMA has always enjoyed an exceptionally close relationship with the Bank of England and the FSA (now FCA), and the same applies to a number of other market organisations and in particular our sister organisation, the LPPM. I can hardly avoid referring to the eternal question that has been asked since the two associations were founded 25 years ago: "Will the LBMA and the LPPM ever merge?" I am not going to try to answer that one except to say that the mutually beneficial co-operation between us is demonstrated in many ways – the joint approach to our annual conference (and recently the cocktail party in New York), the publication of the OTC Guide and the GD system – and will no doubt continue in the future.

Over the past 14 years, it has been a huge privilege to work with so many outstanding individuals who have made the LBMA what it is today. I want to thank them all. I am delighted that the LBMA is about to start a project with the working title "Voices of the London Bullion Market", which will attempt to capture the contributions to the development of the market in the past quarter century.

So what will come out of left field? By definition, the answer is obscure, but I am very confident that it is the people in the market with their broad as well as deep knowledge of all its aspects who will ensure that the LBMA and the loco London Market can rise to the challenge.

Stewart Murray will retire as Chief Executive on 31 December 2013 and will then continue in a consultancy capacity with special responsibility for Good Delivery issues.

Vacancies

A vacancy has arisen at the LBMA for the role of Operations Director, with responsibilities for general administration of the Association. The specific duties include Finance, Human Resources, IT systems and Office Management.

The LBMA is also looking to recruit a senior member of staff to take responsibility for various aspects of the Association's work in relation to regulation and compliance.

Anyone interested in applying for either of these vacancies is invited to contact the LBMA for further details, at **mail@lbma.org.uk**

The Alchemist is published quarterly by the LBMA.
For further information please contact Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

VERISCAN

BULLION IDENTIFICATION SECURITY SYSTEM

The Fingerprint of the Future

Finally, bullion arrives in the digital age…

PAMP, the renowned industry innovator, once again transforms the world of precious metals by introducing the latest in Laser Surface Authentication technology: VeriScan™.

With a uniquely individual and imperceptibly present 'surface signature' that is up to four-times more distinctive than a human fingerprint, each PAMP bar is designed to enhance authenticity while offering you a world of possibilities to identify and manage your transactions of PAMP bullion.

Progressive worldwide rollout begins early 2014.

PAMP
Produits Artistiques Metaux Precieux

TRUST IS PRECIOUS

The Art of Precious Metal Transformation®

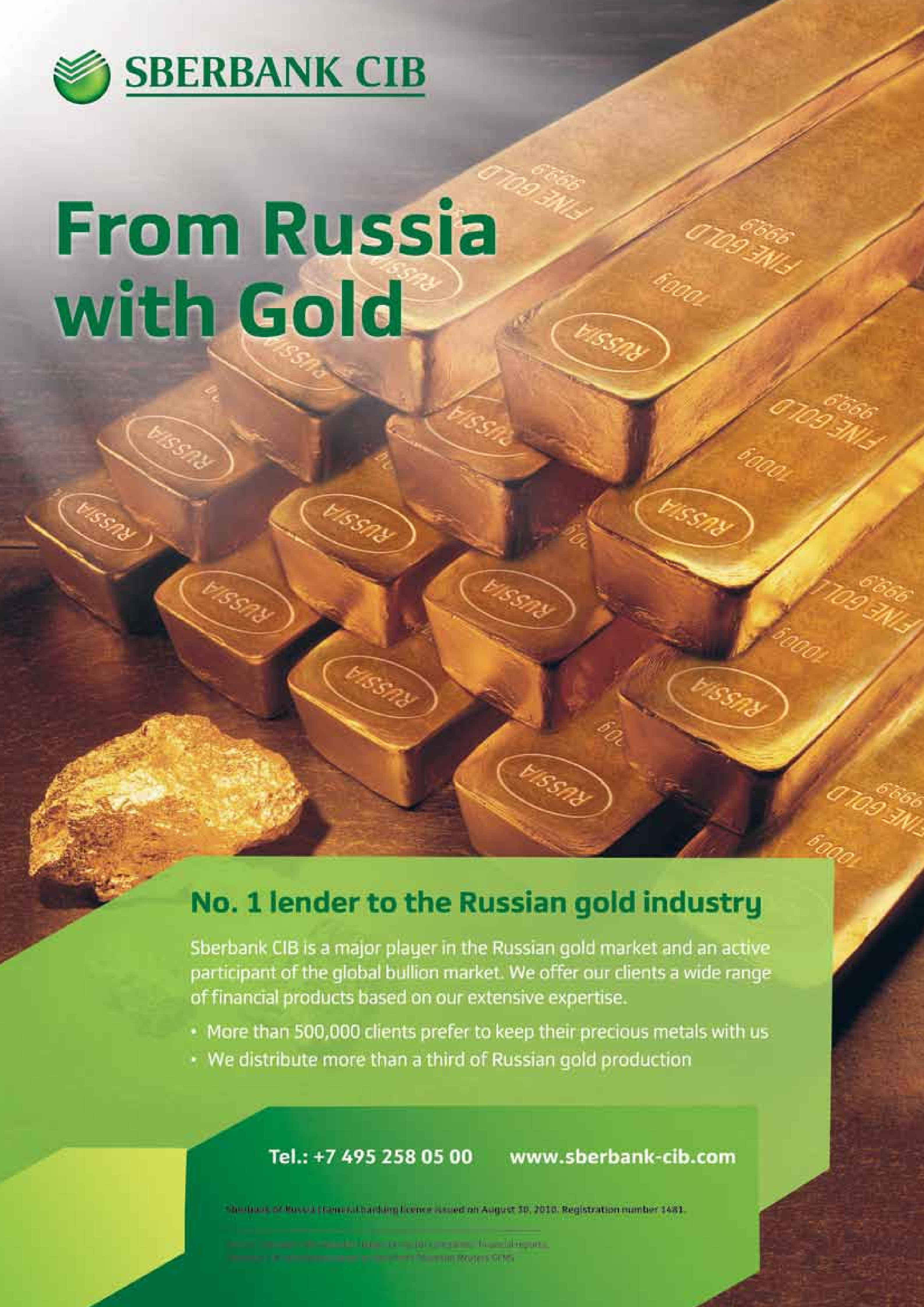
PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

Alchemist

LBMA
The London Bullion Market Association
ISSUE 73
March 2014

In this issue

The LBMA will be launching its new and exciting website very shortly. It delivers a new look, design and structure to make it more user friendly, making it easier to access information and navigate round the site. We hope that you will like it.


SBERBANK CIB
From Russia with Gold
No. 1 lender to the Russian gold industry
Sberbank CIB is a major player in the Russian gold market and an active participant of the global bullion market. We offer our clients a wide range of financial products based on our extensive expertise.
• More than 500,000 clients prefer to keep their precious metals with us
• We distribute more than a third of Russian gold production
Tel.: +7 495 258 05 00
www.sberbank-cib.com
Sberbank of Russia general banking licence issued on August 30, 2010. Registration number 1481.

The Great Financial Crisis of 1914

By Professor Richard Roberts, Institute of Contemporary British History, King's College London

In July 1914, as it became clear that a European war was on the cards, London, the world's foremost international financial centre, suffered an acute financial crisis. The financial markets froze, shares crashed and depositors were unable to access their funds for days. The London Stock Exchange shut and stayed shut for five months. It was feared that a run on the banks had begun, threatening the country's payments and credit mechanisms – and all as Britain teetered on the verge of war and then plunged into the Armageddon.

Despite its unrivalled severity, the financial crisis of 1914 is virtually unknown. The reason is straightforward – it is simply absent not only from general texts but also from most of the specialist literature. Several journalistic accounts appeared in 1915, but ever since it has been overlooked – until now, the 100th anniversary.

Why? Well, presumably because the financial crisis was overshadowed by the diplomatic crisis and then the military conflict. The life and death struggle was more important and dramatic than the financial disintegration. Every political, social, cultural and economic dimension of life was in crisis in summer 1914: there was nothing especially notable about the financial sector being in trouble. Moreover, the crisis was effectively managed and, as it turned out, there was no headline-making casualty. There was no Barings or Lehman Brothers.

Nevertheless, it was the most severe systemic financial crisis that London has ever experienced. And not just London. Some 50 countries around the world had financial crises with runs on banks and stock market slumps. It was the most extensive and acute global financial crisis ever.

Breakdown

The countdown to war began with the assassination of Austrian Archduke Franz Ferdinand in Sarajevo on 28 June. The markets took the murder in their stride. After all, there had been Balkan crises in each of the previous three summers and all had been defused.

Market perceptions of the risk of war were transformed by Austria's belligerent ultimatum to Serbia on the evening of Thursday 23 July. This was the 'Minsky moment' when greed tuned to fear – collateral damage from the diplomatic crisis before a shot had been fired. There was an immediate international scramble for liquidity – meaning the dumping of assets and the withdrawal of credit. Continental bourses crashed and there were runs on savings banks.

In London, the foreign exchange and money markets broke down early in the week beginning Monday 27 July. Then on Friday 31 July, the London Stock Exchange, for the first time in its 117-year history, shut its doors. Displaced brokers and jobbers milled around in Throgmorton Street like "swarming ants around the destroyed heap". (See main photo above)

The English joint-stock banks, which included some of the world's largest banks, became increasingly concerned about their vulnerability to a run on deposits. Their assets were becoming more and more illiquid, while their liabilities were mostly demand deposits. From Wednesday 29 July, the banks rationed payment to depositors of gold sovereigns, £1 gold coins that were the key circulating medium, and paid out instead in Bank of England £5 notes, the smallest denomination banknote. Since a £5 note was equivalent to around £400 in today's money, it was useless for everyday transactions, so recipients made their way to the Bank of England to change their notes for sovereigns, as they were free to do under the classical gold standard. This resulted in long queues that presented the appearance of a run on the Bank. A *Financial Times* reporter found "...a queue of people, some 200 to 250 strong, resignedly awaiting their turn to obtain access to the magical counter where cash was being poured forth in a steady stream...". "Gold, gold, gold, gold, Bright and yellow; hard and cold."

This was undoubtedly what was wanted, and when a red-cloaked official shouted ironically, "Silver! Anybody want silver? Plenty of silver going cheap", a dead silence followed and on many faces was to be observed a sardonic smile. No, cheap silver was not wanted and the outflow of the precious yellow metal continued...

A *Financial News* journalist reported witnessing an evening newspaper vendor shouting "Run on the Bank. Run on the Bank" to the crowd of onlookers outside the Bank of England. He summoned a policeman, who arrested the newsboy.

> *"Market perceptions of the risk of war were transformed by Austria's belligerent ultimatum to Serbia on the evening of Thursday 23 July. This was the 'Minsky moment' when greed tuned to fear – collateral damage from the diplomatic crisis before a shot had been fired."*

Crisis management fell initially to the Bank of England, which lent liberally against assets presented by banks. In accordance with the current doctrine of lender of last resort, it raised

the bank rate from 3% to 4% and then to 8%. The Governor also asked the Prime Minister and Chancellor to suspend the Bank Act, which would allow the Bank to print more notes to relieve the pressure for liquidity from banks and businesses. The political authorities' condition, based on past precedent, was a 10% bank rate. This was duly implemented – the highest rate in the world. The Governor was furious with the joint-stock banks for pulling their call loans to City firms, contrary to his request, to boost their liquidity. The central bank retaliated by limiting lending to the banks. As Europe went to war, the City went to war with itself.

Crisis Containment

With the City at loggerheads and the banking system in danger, management of the crisis moved to the Treasury. Saturday 1 August saw the start of the summer holiday weekend. Monday's bank holiday was extended by a further three days, providing a breathing space for the formulation of crisis management measures. In the middle of the unprecedented four-day public holiday, at 11 p.m. on Tuesday 4 August, Britain declared war. These were days of innumerable and interminable meetings in the City, with the Treasury making preparations for the reopening of the banks and money market on Friday 7 August. "These are exciting if interesting times," wrote the Deputy Chairman of Lloyds Bank. "I never thought I should have so many Bank Holidays together or that there should be so much Bank about them and so little holiday! I have spent them from morning till late at night in meetings and conferences."

The principal crisis containment measures, devised and introduced during the long bank holiday, were the issuance of Treasury currency notes and a 'general moratorium'. The Treasury notes were small denomination notes that were paper substitutes for the sovereign [£1] and half sovereign [50p] gold coins. Bearing the signature of Sir John Bradbury, the Permanent Secretary, they became known popularly known as 'Bradburys'. (See photos on pages 5 and 6)

The general moratorium was a legalised suspension of contracts aimed to protect debtors until commercial conditions calmed down, but also as a further safeguard for the banks against a run on deposits. Such a measure was unknown in Britain and newspapers offered guidance to bewildered readers. *Punch* magazine expressed the public puzzlement with a satirical array of *vox pop* suggestions as to the meaning of the word 'moratorium': "It's a big ship...one of the Cunaders"; "Sister ship to the Lusitania"; "A place for burying people – a sort of big tomb where they put dead kings. There's one at Windsor."

In the run-up to the reopening of the banks on Friday 7 August, ministers vociferously denounced the hoarding of gold in speeches in the House of Commons. The press joined in with enthusiasm. 'The Folly of Hoarding' was the headline to a thundering editorial in *The Times*. "Everyone should understand the simple position. All the gold should be in the banks and available for the state as a whole," exhorted the *Evening News*. "In the same way as people are sending their sons to fight in case it should be necessary, so they should pay their gold into the banks, in case the state should require it."

"In the run-up to the reopening of the banks on Friday 7 August, ministers vociferously denounced the hoarding of gold in speeches in the House of Commons."

The *Globe* featured a prominent display box captioned 'The Duty of Every Good Britisher'. "Today when the £1 notes are ready at the banks it is the duty of every good Britisher to take all the sovereigns that he or any of his family possess to the nearest bank and change them for £5 or £1 notes," stated the City editor. "Do not let your friends alone to this, do it also yourself. It is a duty, a small one it is true, but in the aggregate the result will be helpful to the country, and your country must be your first care today. All the gold coin we possess is required for the use of our forces in the field and for the purchases required by the country abroad." The campaign was successful; not only was there no run, but gold coin was paid into the banks in return for new Treasury notes.

The photo above shows the queue at the Bank of England of people seeking to change £5 notes for gold.

Photo shows a £1 Bradbury.

Suspension of the Bank Act, which prescribed a fixed ratio between the Bank of England's gold reserves and the volume of notes in circulation, meant the suspension of sterling's adherence to the gold standard, since it would not be possible to redeem the expanded note issue for gold. Suspension of the gold standard was urged by the banks to prevent internal and external drains of gold, but this was strongly opposed by Bradbury because it would undermine sterling's position as the lynchpin of the international financial system, and since devaluation was likely, would harm Britain's ability to borrow abroad should it become necessary (as it did). John Maynard Keynes, a young Cambridge don who was an unofficial helper to the Treasury team during the crisis, penned a vital memorandum that persuaded the Chancellor, David Lloyd George, against suspension of the gold standard. Keynes argued that as a huge creditor to the world, London would be the recipient of gold flows once the crisis abated, as proved the case. Prior to the crisis, the Bank's gold reserve was £38 million. By December, it was a record £73 million. In the event, the suspension of the Bank Act was never implemented. Although Britain remained on the gold standard throughout the war, regulations made impossible in practice for private citizens to obtain gold.

The re-opening of the banks on Friday 7 July was anxiously awaited. It featured in a novel by H G Wells, *Mr Britling Sees It Through*: "When the public went to the banks for the new paper money, the banks tendered gold – apologetically. The supply of new notes was very insufficient, and there was plenty of gold."

Revival

With the banking system secured, the authorities turned their attention to the revival of the City's moribund financial markets and the removal of the emergency measures when it was safe to do so.

Revival efforts focused on the money market. The perceived problem was the £350 million of 'derelict' pre-war bills of exchange that were clogging banks' balance sheets. Many were on account of foreign firms that would not remit funds at maturity. It was believed that this 'incubus', as Lloyd George put it, was preventing the creation of new bills and inhibiting the banks from lending to business.

On Wednesday 12 August, the Chancellor announced what he called the 'Cold Storage Scheme'. By this 'heroic intervention', as a leading commentator put it, the Bank of England, under Treasury guarantee, offered to buy almost any pre-war bill. This would concentrate problem bills at the Bank of England and boost the liquidity of the banks. Banks rushed to offload bills. By early September, the Bank of England held £133 million of bills, almost 40% of the money market.

> *"The re-opening of the banks on Friday 7 July was anxiously awaited. It featured in a novel by H G Wells, Mr Britling Sees It Through: "When the public went to the banks for the new paper money, the banks tendered gold – apologetically. The supply of new notes was very insufficient, and there was plenty of gold."*

A second 'heroic intervention' was launched on 5 September. The objective of the 'Enlarged Scheme' was to recapitalise some specialist banks to allow them to endorse new bills providing finance for business. This was done through loans from the Bank of England, again under Treasury guarantee, which provided the funds with which they could pay off outstanding bills. In total, some £200 million was provided to the banks by the state through these revival schemes. This was 9% of GDP. It was state intervention in the financial system on a hitherto unimaginable scale.

Remittance to London was facilitated by the opening of Bank of England gold depositories across the Empire. Depositors received a credit at the Bank that could be used to meet obligations in London. Over the autumn, the foreign exchanges returned to pre-war levels.

The general moratorium was scheduled to run for a month. But removing it proved problematic because fears of a run on the banks revived every time there was a reversal on the battlefield. It was judged that to remove it and then have to re-impose it would be economically chaotic. Hence, the moratorium was twice extended. It was eventually lifted, without incident, on 4 November.

A key stimulus to the revival process was the beginning of usage by the state of the mechanisms of the City to finance the war. On 19 August, there was an auction of £15 million of Treasury bills. By the end of the year, there was £100 million outstanding and, in 1919, there was £1.2 billion outstanding. November 1914, while the Stock Exchange was still closed, saw the first War Loan bond issue. At £350 million, it was, Lloyd George proudly told the House of Commons, the world's biggest ever fund-raising. However, due to various miscalculations, the issue was a fiasco, though this was kept from the public. Despite much arm-twisting of the banks, only £237 million of the loan was subscribed for, leaving a shortfall of £113 million – no less than £38 billion in today's money. To disguise the failure, the Bank of England's Chief Cashier and his deputy *personally* subscribed for the missing millions, being secretly provided with funds. It was, observed a senior official, "the Treasury's blackest secret".

The final normalisation step was the re-opening of the Stock Exchange. This eventually took place, with strict restrictions on dealings, on Monday 4 January 1915. The Great Financial Crisis was over.

Perspectives

Overall, the management of the financial crisis of 1914 has to be judged a success. The emergency measures "Saved the City", as Lloyd George boasted in his memoirs. First, the measures forestalled the dreaded run on the banks and the potential collapse of the country's payments and credit mechanisms. Second, they preserved the institutional structure of the City's markets, both as regards functions and firms.

No major bank or financial firm failed in 1914. This was an important achievement since such failures can have serious contagion effects. It was the outcome of massive and unprecedented state intervention in the financial system. The City survived the crisis more or less intact, but its business was transformed from financing the global economy

Photo shows a ten shilling Bradbury.

into financing the British and Allied war effort. This was not the initial motive behind the containment and revival measures, but it became strategically crucial as the war dragged on and became more and more an existential struggle.

Major international financial crises are uncommon events. 1914 saw one. So did 2007/08 and we are still living with the fallout. The causes of the two crises were plainly very different, but there are echoes in their unfolding and management by the authorities.

Both crises featured bank illiquidity, systemic illiquidity and a credit crunch. And both crises saw measures to address these problems. The objective of the Bank of England's Special Liquidity Scheme of 2008 was to improve the liquidity of the banking system. It aimed to do so by helping banks to finance illiquid 'troubled assets' on their balance sheets, notably their investments in mortgage-based securities. It was the same purpose as Lloyd George's Cold Storage Scheme of 1914, which aimed to remove the 'derelict' bills from their balance sheets.

The Bank of England's Funding for Lending Scheme was introduced in 2012 to incentivise banks to boost their lending to the real economy by providing them with funding. It has a distinct resemblance in purpose to 1914's 'Expanded Scheme', which provided loans to specialist banks to help them resume their role in credit provision. Such parallels illustrate the relevance of past precedents for current policy-makers.

The bank support schemes of 1914 injected substantial liquidity into the banking system. The Treasury's intention was that the funds would help the banks to resume lending to business. But instead, the banks placed much of the funds on deposit with the Bank of England for safe-keeping. Between August and December, bankers' deposits at the Bank of England more than trebled from £30 million to £105 million.

This was not the outcome that the Chancellor expected from the array of measures that had been taken to support the banks. He was infuriated by the complaints he received from business about the banks' refusals to lend and gave the bankers' leaders a sharp dressing down at the Treasury. He even hinted at state control if they did not fulfil their side of the bargain. Reporting on the meeting to the Commons, he stated that:
"I think we have done for the banks as much as ever they could have expected of us. We did not do it in order to strengthen their position or to increase the dividends. We did it in order to enable them to finance the trade of the country during a difficult period. If the government is prepared to take risks, they must take risks as well..."

> *"Major international financial crises are uncommon events. 1914 saw one. So did 2007/08 and we are still living with the fallout. The causes of the two crises were plainly very different, but there are echoes in their unfolding and management by the authorities."*

They were sentiments that might well have been expressed by Alastair Darling or Mervyn King. Indeed, the Governor told the Treasury Committee that the support provided by the Bank of England was designed "not to protect the banks, but to protect the economy from the banks".

City economist Brian Reading has observed that the 1914 Treasury currency notes "smack of Quantitative Easing". Both measures provided additional liquidity to the financial system. Later in the war, the Treasury notes significantly boosted inflation. Many predict a similar eventual outturn to QE.

But, of course, there are notable differences. One is the post-crisis economic recession that typically follows a banking crisis. There was no such recession in 1914 – there was the Great War.

Professor Richard Roberts specialises in financial history with contemporary relevance.

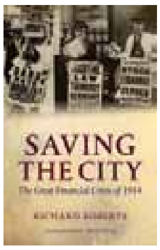
His latest book is: *Saving the City: The Great Financial Crisis of 1914* (Oxford University Press, 2013). Mervyn King has called it 'lucid and masterly.'

Richard has had faculty positions at Sussex and London universities, as well as fellowships at Cambridge, Princeton and the Bank of England. He also worked for BP as an economist.

His many publications on financial history include histories of the Bank of England, Schroders and Orion, a Euromarkets consortium bank. His contemporary books *Wall Street* (2002) and *The City* (2008) are published by *The Economist*. Collaborations with David Kynaston include co-authorships of *City State* (2001) and the forthcoming official history of HSBC (2015).

Special reports for City consultants Lombard Street Research include long-term perspectives on the breakup of monetary unions, fiscal consolidations and international trade confrontations. His most recent report was: *Did Anyone Learn Anything from the Equitable Life? Lessons and Learning from Financial Crises* (2012).

Other activities include editorial adviser on the digitisation of the *Financial Times and The Economist*; and Advisory Board memberships of a Gulbenkian Foundation project and OMFIF (Official Monetary and Financial Institutions Forum).



Adapted by Prof Richard Roberts from his new book "Saving the City - The Great Financial Crisis of 1914" published by Oxford University Press. Available from all good bookshops or OUP: 01536-452-640; trade.orders.uk@oup.com.

The two photos featured in this article on pages 3 and 4 are reproduced here by kind permission of Professor Richard Roberts.

Au | 99.99

Exceptional quality and absolute Chain of Custody

As a measure of our commitment to sourcing and producing only the best certified responsible gold, we've introduced the RandPure™ mark. An iconic symbol of pure refinement, guaranteeing the provenance, fineness, exceptional quality and absolute Chain of Custody of the precious metal it endorses. Our RandPure™ product meet stringent craftsmanship criteria, making every RandPure™ item truly exclusive and exceptional.

The RandPure™ mark certifies that the precious metal is:

- Newly mined only – virgin African gold doré (contains no secondary gold i.e. scrap or recycled);
- Conflict free – warrantees conformance to principles / standards / guidance from WGC, USA Dodd-Frank Act, LBMA, RJC and OECD;
- Human Rights Abuse Free – no child labour, forced labour or severe human rights abuses;
- Crafted on-site at Rand Refinery – guarantees "traceability" and absolute Chain of Custody from "ore to store".

Ec	Af	Cf	Tv	Cd
EXCEPTIONAL CRAFTMANSHIP	ABSOLUTE FINENESS	CONFLICT FREE	TRACEABLE VIRGIN GOLD	CONTRIBUTES TO DEVELOPMENT

A PRODUCT OF
RAND REFINERY

RANDPURE™

Rand Refinery (Pty) Ltd, Refinery Road, Industries West, Germiston, 1401 | P.O. Box 565, Germiston, 1400, South Africa
Tel: +27 (0)11 418 9000 | Fax: +27 (0)11 418 9231 | Email: gold@gold.co.za | www.randrefinery.com

Voices of the London Bullion Market

By Michele Blagg, Research Associate at the Institute of Contemporary British History (ICBH)

The success of the City of London in maintaining its pivotal role as the world's leading bullion market for over 200 years has been an astonishing achievement. Over the last 30 years, the London Bullion market has undergone a radical transformation from a British elite system, once based upon mutual trust and gentlemanly understanding, to a transnational forum.

'Voices of the London Bullion Market' aims to capture, contextualise and explain this transformation. The recent 25th anniversary of the London Bullion Market Association offered a time for reflection and celebration of the Association's achievements. Robert Guy, one of the original architects of the LBMA and the very first chairman, in his article for the special Silver Anniversary edition of the *Alchemist*, discussed some of the difficulties the London market had faced and shared his memories of the formation and early years of the Association.

The LBMA now plans to build on such memories to capture the transformation from the inside. It invites members of the Association past and present, as the generation of workers that shaped and experienced change, to tell their stories. Dr Michele Blagg, a research associate at the Institute of Contemporary British History at King's College London, has been commissioned to conduct an oral history project on behalf of the Association. The collection of interviews with participants involved in historical events has long been a complement to written records, adding personal detail and enhancing understanding of causes and contexts. In recent years, oral testimony has become even more important as the capture and management of email and mobile communications tends to lag behind more traditional record-keeping.

Since January, Michele has compiled a list of participants and events connected to the LBMA. She has immersed herself in the Association's archives, consulting past copies of committee meeting minutes, early newsletters and articles from the *Alchemist*, and locating a variety of literature and media reports from other sources.

Should you like to participate in this project, or share memories, photographs, old newsletters or other artifacts, Michele can be contacted at: voices.project@lbma.org.uk .

The Dealing room at Sharps Pixley circa 1982. Notice the lack of computers and bowler hats. It is amazing to think that how the bullion market would cope now without the use of computers.

Michele Blagg (BA(hons), MA, PhD) is a visiting Research Associate at the Institute Of Contemporary British History(ICBH). As part of a collaborative doctoral award granted by the Art's and Humanities Research Council, she was based at the Rothschild Archive, London. Her doctoral research focused on the Royal Mint Refinery, operated by N M Rothschild & Sons between 1852 and 1968, and how it adapted to the changed London gold market. Her areas of interest are in financial and business history with special regard for the actors and networks located in the London market. Her publications include 'Gold Refining in London: The End of the Rainbow, 1919-20' in The Global Gold Market and the International Monetary system from the late 19th century to the present (forthcoming, 2013); 'The Royal Mint Refinery, a business adapting to change' in Business Archives Council, Sources and History. She teaches on the ICBH MA in Contemporary British History and assists with the Witness Seminar Programme. She sits on the Business Archives Council Executive and is involved in the annual 'Meet the Archivists' workshop held in the City that aims to explore ways in which research students can identify and use business records in a variety of different research fields.

Bullion market dinner in the mid 1980s to mark the retirement of Dennis Suskind of J. Aron.
Many of the most familiar and influential figures in the London bullion market are shown in the photograph including some of those who helped to set up the LBMA. Pictured left to right are Les Edgar, Chris Tors, Keith Smith, Stewart Pixley, Dennis Suskind, Robert Guy, Guy Field, Robert Stein, John Bishop, Alan Baker, Neil Newitt, K C Wu, Jack Spall, Doug Bull, Brian Nathan and Robert Beale.

Diary 1988

As prepared by Michele Blagg

On 14 December 1987, the London Bullion Market Association was formally incorporated. In light of changes in the supervision and regulation of the financial markets that took place in the United Kingdom that year, the five members of the London Gold Market, together with other participants in the trading of precious metals in London, instituted a Steering Committee to explore the possibilities and problems involved in the creation of a new market association. Committee members were selected on the basis of their personal experience of the Market, rather than as representatives of a particular company. The number was limited to six in order to "achieve swift progress without unnecessary bureaucracy". The Steering Committee was made up of Robert Guy – Chairman, Guy Field – Vice Chairman, Keith Smith, Jack Spall, John Wolff and Neil Newitt.

From the Steering Committee's inception, The Bank of England, which held responsibility for the supervision of the wholesale bullion market, was involved in the Association's affairs and assisted in the drafting of the relevant Code of Conduct. Observers continue to attend Management Committee Meetings to the present day. In addition, the Committee has maintained close contact with H M Customs & Excise in respect of exemption to Value Added Tax for members of the Association.

January

Membership application forms were available. Potential members were made aware that existing Associate Membership of the London Gold Market/London Silver Markets did not ensure membership of the new Association. In addition to the Management Committee, a number of specialised committees were formed to deal with particular aspects of the Market. These included Membership, Finance and Physical, Public Affairs and Market Development. In each case, the expertise of other bullion market practitioners was, and continues to be, called upon. In order to qualify for market maker membership, companies had to fulfil a set of criteria that would entitle them to be listed as such by the Bank of England. All members paid an entry fee of £2,500 plus an annual subscription.

The Memorandum of Association defined the remit of the LBMA as:

> Deemed to encompass, but shall not be limited to, those companies partnerships and other organisations which are actively engaged, in trading or refining or melting and assaying or fabricating or transporting, or vaulting gold and /or silver bullion within, or with or for persons in, the United Kingdom.

while the Articles of Association set out in more detail the way in which the LBMA would operate. It was very much hoped that the new LBMA would receive strong support from both the market and its customers. Membership of the LBMA was two tiered:

1. Market Maker Member: A person which, at the time of admission to membership is a "market maker" and which is a "listed institution".
2. Ordinary Member: A person which at the time of admission of membership is actively engaged in the activities defined in the Memorandum of Association.

The membership and Articles defined the role of the Association and among the specific objectives were:

- Promotion, encouragement, development and advancement in every possible way of the affairs of all those engaged in every aspect of the bullion market in the United Kingdom.
- Provision of a forum for the discussion of all matters concerning members of the Association.
- Dissemination of information to members on matters of mutual interest.
- Representation of the common interest of members in dealing with governments and other authorities.
- Taking of actions to ensure the provision and smooth running of a market in gold and silver, including the formation of rules and codes of conduct.
- Publication of any material concerning the market and its members.
- Liaising with the Bank of England and Customs and Excise as necessary.

March

Progress had been made in the formation, membership and function of the Association. The Membership Committee had considered 36 membership applications and a further 23 awaited further consideration. The Physical Committee now presided over the London Good Delivery List and the London Gold Market passed all responsibility over to the new Association.

April

The Bank of England published its list of Listed Institutions and the LBMA formally admitted to membership 13 Market Maker Members together with 48 Ordinary Members.

May

The Inaugural Dinner at Goldsmith's Hall took place. The Guest of Honour was The Rt. Hon Robin Leigh Pemberton, Governor of the Bank of England. One hundred and seventy-eight representatives of the Members and Guests attended, with some travelling from Australia, Japan, Switzerland and the United States to be present. The evening received wide coverage by the media.

Pictured at the first LBMA Biennial Dinner, Goldsmiths Hall, 12th May 1988, are left to right Keith Smith, Robert Guy, Christopher Green, Peter Hambro, the Guest of Honour, the RT Honourable Robin Leigh Pemberton Governor of the Bank of England, Jack Spall and Rolf Schriber.

September

The Association hosted its first seminar at the Savoy Hotel. Mr Timokhine, Senior Manager Precious Metals at Vnesheconombank (Bank for Foreign Economic Affairs, Moscow), outlined the Bank's central role in the handling of the Russian State's gold business and then participated in a question and answer session. The event was well supported, with feedback from members indicating that the evening was appreciated and the Association should hold further seminars from time to time.

A New Gold Rush? More Demand for the Precious Metal than People Realise

By Daniel Marburger, Director, CoinInvestDirect.com

Daniel Marburger, Director of CoinInvestDirect.com, heralds the arrival of a new type of gold investor. He explores why people are shopping for gold on the internet, looks at future challenges and explains why he's confident the gold price will keep the new buyers interested.

Some recent meetings with journalists from national newspapers have confirmed my belief that gold is indeed the marmite of investments. One journalist from a very well-respected daily newspaper, for example, refused to entertain the idea of writing about gold within the context of personal finance simply because, he said, the price isn't interesting anymore.

A cursory glance at our orders, however, will tell you a very different story. The price of gold is certainly not at the high levels we saw in 2008, yet our customers are ordering more than ever. At the time of writing, orders for gold were up by 25% week on week compared with the same period last year. Gold sales per ounce have actually increased by 60% and silver sales by 20%, throughout the year.

When looking for an explanation, it is fair to say that our customers are currently seeing the price as a good buying opportunity. Yet, we believe that the reason for gold's new popularity as an investment is that it is becoming firmly entrenched as part of the portfolio of the everyday investor. Ordinary investors, who at one time were precluded from access to the precious metal, are now considering its benefits. And here's the rub, we think there's far more demand for gold than people actually realise.

Searching for a safe haven

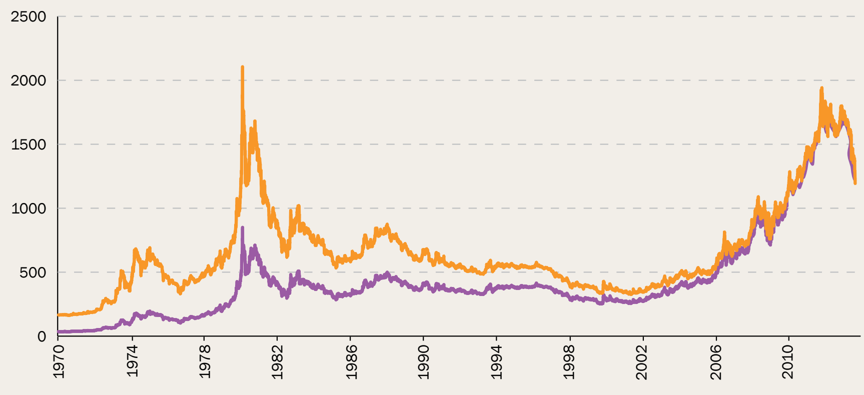
So what's changed? Fifteen years ago, the gold investment market was very different. Everyday investors had limited access to gold and many regarded it as an irrelevance. Research compiled for CoinInvestDirect.com by the Centre for Economics and Business Research (CEBR) shows that the average price of an ounce of gold between January 1970 and December 2005 was $300. The precious metal peaked at over $800 (over $2,000 in today's prices) during the 1980 OPEC oil crises. A largely stable price, therefore, exacerbated the age-old objections that gold did not generate income and that it incurred additional costs for storage.

However, since the financial crisis of 2008, gold has been boosted by a period of economic uncertainty. The price was driven up by investors seeking a safe haven for their funds. Further, weakness in Western economies restricted returns on investments in financial assets such as equities, and returns on government bonds were pushed to record lows as interest rates collapsed and central banks pursued aggressive bond-buying strategies, or quantitative easing, to support economic growth.

> *"In July 2013, Ben Bernanke, then chairman of the Federal Reserve, told the Senate Banking Committee that "nobody really understands gold prices and I don't pretend to understand them either."*

As central banks moved to increase the supply of money, the value of money fell relative to other goods and services. This effect mounted pressure on investors to diversify their assets, boosting demand and therefore the price of gold. In addition to this, the price of gold experienced a sharp spike as markets learned of the impending bankruptcy of Lehman Brothers. In the ensuing financial turmoil, investors fled to the safety of gold, which pushed the price per ounce up by over $100 within a matter of days. The collapse of Lehman

Chart 1. Price of gold, daily since 1970, $ per troy ounce



Brothers actually increased the price of gold by 18.6% within just one week.

However, as optimism started spreading in early 2013, gold prices suffered from a downward movement, followed by reasonable stability in the second half of last year. Despite the recent falls, the latest data suggest that, in September 2013, the price of one ounce of gold averaged $1,316. This represents a 324% increase in nominal terms since 2002. Interestingly, prices today are over 70% higher than on the day of the collapse of Lehman Brothers in mid-September 2008.

Encouraging first-time investors

As the years between 2006 and 2011 became a period of dramatic price increases, writing about gold became fashionable and people started to think about how they could access the precious metal. And thanks to the arrival in 2004 of gold-backed exchange traded funds (ETFs), people who wanted to buy gold could now do so. ETFs, regulated financial products designed to provide investors with exposure to the price performance of spot gold bullion, seemed to overcome the difficulties of finding a cost-efficient and secure way to participate in the gold bullion market without having to take physical delivery of gold.

Buying gold in a new way

In 2006, Dr Ulrich Byszio came to the UK to seek a way to democratise gold investment and give people the opportunity to invest in the commodity itself. As a result, he set up the internet-based CoinInvestDirect.com, which enables people to buy gold and silver online.

Ulrich Byszio established credible relationships with leading mints around the world. This approach ensures that, as an official distributor, CoinInvestDirect.com can provide genuine high-quality gold bars and coins in large quantities.

As a purchaser of substantial quantities of gold, the company is able to ensure its cost-effectiveness and pass savings on to its customers. In addition, it has set up gold storage and insurance options for its customers.
.

While ETFs undoubtedly helped to change the gold investment landscape, we found that many investors prefer to hold gold in their own hands. Therefore, CoinInvestDirect.com and other companies like it have introduced this new way to buy gold. Gold can now be purchased online as easily as food, clothes, toys and music, with the bars or coins arriving by post just 48 hours after a customer has placed their order.

Chart 2. Daily price of gold 2006-2011, $ per troy ounce

Such was their popularity that, by 25 June 2010, physically backed funds held over 2,000 tonnes of vaulted gold for private and institutional investors. Today, the largest of the physical gold bullion-backed ETFs is SPDR Gold Shares (GLD), which is traded on major stock exchanges around the world, including London, New York, Zurich, Paris and Mumbai.

At the time of the launch of the first ETF, the main objections to investing in gold were that it did not generate income and that it was costly to store and insure. Yet, despite this, the precious metal's dramatic price rise two years later encouraged many investors to take advantage for the first time. So, from the perspective of the investment industry, ETFs have certainly helped to bring gold investment into the mainstream by giving people easier access. Further to this, gold's new popularity was aided by regular articles in national newspapers and online journals, which extolled the benefits of its inclusion in an investment portfolio.

Who are the new consumers?

Someone recently asked me if all gold investors were doom-mongers – people who feared the future and were motivated by an inherent fear of financial Armageddon. We find the opposite to be true. Indeed, gold investors are ordinary people who run companies, financial or otherwise. They can be everyday employees, high earners or low earners, some of whom invest a substantial part of their overall portfolio in gold. What they do have in common, though, is a desire to protect their wealth.

On average, we find that our customers spend £5,000 every time they invest. Gold currently exceeds silver in popularity and most customers opt for the 100 gram gold bar along with the 1oz maple leaf gold coin. And what most people do not realise is that British legal tender gold coins, such as the Britannia or Sovereign, are exempt from capital gains tax, which ultimately makes them more tax-efficient than ETFs. A recent article in *The Telegraph* said: "A balanced portfolio should hold an allocation of about five per cent in assets such as gold. The future is uncertain and gold is the most effective insurance against that." Interestingly, most of our customers tend to invest around 5% of their wealth in gold.

> *"The price of gold is certainly not at the high levels we saw in 2008, yet our customers are ordering more than ever."*

We also tend to see lots more interest and activity when the price is low. We believe that the reason we are seeing an uptake in investor demand right now is because our customers regard price stabilisation as a buying opportunity. To illustrate this, our figures show that there are generally 100 buyers to every one seller at today's prices.

Significant growth from emerging markets

Looking ahead, we believe that one of the biggest hurdles for the gold industry generally is to educate customers about the complexities of the gold price itself. In July 2013, Ben Bernanke, then chairman of the Federal Reserve, told the Senate Banking Committee that "nobody really understands gold prices and I don't pretend to understand them either". If the chairman of the Federal Reserve can admit to such perplexity, it is not surprising to find that the gold price can baffle everyday investors.

> *"We believe that the reason we are seeing an uptake in investor demand right now is because our customers regard price stabilization as a buying opportunity"*

We recently asked the Centre of Economics and Business Research (CEBR) to produce a report about gold. Our aim was to address the concerns of our customers and look at the fundamentals propping up the gold price. We wanted to explore some of the macroeconomic determinants of the price of gold and the causes of its more recent movements, both up and down.

The report suggests that gold demand tends to increase against a backdrop of economic, financial and geopolitical uncertainty, which is certainly not news to anyone familiar with the gold market. It also discovered that gold becomes a more attractive substitute for storing value when risks associated with assets such as government bonds increase in the face of political uncertainty and debt concern. Further to that, gold demand has a tendency to increase when there is a risk of high inflation and this, in turn, increases its value compared to a currency that is at risk of losing value.

What did come as a surprise to us, however, was how attractive gold has become as a store of wealth in emerging markets where financial sectors are somewhat less developed. Indeed, the BRICs economies alone have almost doubled their share of world gold reserves since 2003. In addition, there is a robust growth of demand from emerging markets, where consumer appetite shows little sign of slowing.

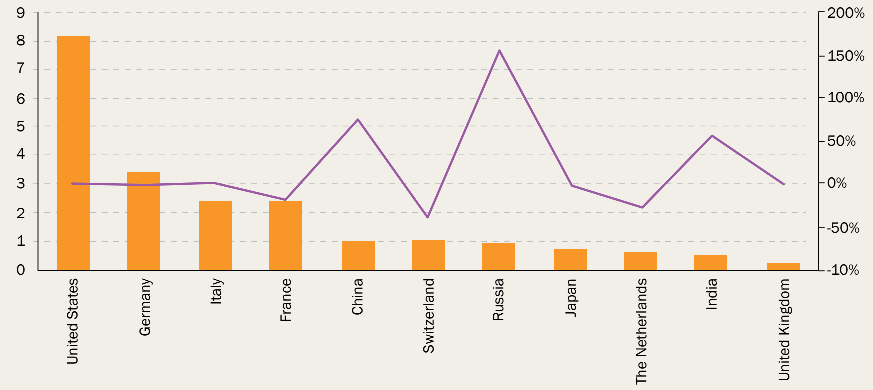
Going forward, demand for gold is likely to become more reliant on the personal consumption and savings of individuals and central banks in emerging markets. According to the CEBR report, recent demand for gold has been high in Asia and the Middle East, stoked by continuing economic development within these countries. Demand for gold has risen from both individual consumers – in the form of jewellery, bars and coins – as well as from central banks that have added gold to their reserves to diversify their portfolios.

The report has also pointed out that, given gold's finite nature, the increase in demand from emerging markets is unlikely to be matched by an increase in supply. As a consequence, increase in demand will inevitably lead to a boost in price in order for the market to reach an equilibrium whereby the total quantity demanded matches that available for supply.

Who holds the biggest reserves?

Advanced economies still have the largest amount of total gold holdings, largely as a result of the historic tradition of linking currency to gold. The US holds the world's largest amount of gold reserves, estimated at around 8,000 tonnes, followed by Germany, Italy and France, which each hold more than 2,000 tonnes. China completes the top five with just over 1,000 tonnes. When looking at the change in gold reserves, however, the report shows a different picture. Advanced economies, such as the US and Germany, have maintained the same level of gold holdings, whilst Switzerland, France and the Netherlands have all reduced their holdings between 2003 and 2013.

Chart 3. Gold holdings by selected countries, thousand tonnes (Q2 2013), and percentage change from Q2 2003 to Q2 2013



Interestingly, and starting from a low base, CEBR's report shows that emerging markets have made strong gains. Since 2003, Russia and China have increased their gold reserves by 157% and 76% respectively. An increasingly positive attitude to gold as a defence against inflation has resulted in the BRICS economies almost doubling their share of the world's gold reserves from 4.7% in 2003 to 8.8% in 2013.

Looking ahead to online shopping

The CEBR report reveals that the dramatic rise in emerging market demand has been an unsung factor in the surge of the price of gold over the past decade. With growth in these markets driven by strong fundamentals, emerging demand looks poised to continue to support the price of gold going forward.

In countries with less developed financial systems, gold will retain its appeal as a relatively risk-free store of this newly created wealth. In addition, the trend that has seen central banks worldwide being net purchasers of gold in recent years is likely to continue sustaining demand for the precious metal into the future.

> *"The report has also pointed out that, given gold's finite nature, the increase in demand from emerging markets is unlikely to be matched by an increase in supply."*

Overall, the CEBR report shows that the diminishing prospect of ever greater monetary stimulus, which serves to prop up asset prices and hold down returns on other assets, will be countered by the momentum of emerging market growth. And here, the appetite for gold looks set to continue to support demand going forward.

Aside from the industry's challenges to help educate customers and others about the complexity of the gold price, it is important for companies like ours to stay in the vanguard of the precious metals industry. The next step for the industry is to take online shopping for precious metals to the next level by allowing customers to buy and receive silver without paying VAT.

Ultimately, though, it has to be the role of companies operating within the gold industry to ensure that this marmite of investments is understood and considered as part of any investment portfolio.

Daniel Marburger joined Jewellers Trade Services in London in January 2011 with a specific responsibility to develop the CoinInvestDirect.com business. Before that, he was a banker within the private wealth management division of Commerzbank AG, formerly Dresdner Bank.

IRFA Special Issue on Gold

By Professor Brian Lucey, Professor of Finance, Trinity College, Dublin

There has, in the last decade, been a remarkable resurgence in interest in gold as an asset class. The rise and fall of the gold price, questions of gold bubbles, the comparisons of the Euro to a new gold standard, the growth of China as a gold consumer, and the increased growth of gold related products have prompted significant numbers of academic papers on this metal. In this regard it seems timely to put together a set of papers that reflect the state of the art on the financial economics of Gold.

Papers are therefore invited for a special issue on International Review of Financial Analysis on Gold. Papers should be submitted via the elsevier EES system by 1 September 2014.

The Special Issue will be edited by Professor Brian Lucey, Editor in Chief, Professor Jonathan Batten, Special Issues Editor and Professor Dirk Baur, Associate Editor.

Papers should address the financial economics or econometrics of gold, gold derivatives, the gold market, the relationship of gold to other assets, the role of gold mining stocks, the microstructure of the gold market, forecasting of gold, the monetary role of gold and the role of gold as an investment asset. We welcome both theoretical and empirical approaches.

All papers accepted will, prior to publication, be required to be accompanied by a video abstract or audioslide (see http://www.elsevier.com/about/content-innovation/audioslides-author-presentations-for-journal-articles / or http://www.elsevier.com/about/content-innovation/author-videos)

Papers should be submitted via http://ees.elsevier.com/finana/, selecting Gold Special Issue as article type. Please note that the standard submission fee remains in place for this special issue. We reserve the right to accept papers but to place them in regular issues of IRFA as opposed to the Special Issue.

Please feel free to contact any of the special issue authors if you wish to discuss the suitability of a paper for the special issue.

Has There Been a Decade of London PM Gold Fixing Manipulation?

By Peter Fertig, Director, QCR Quantitative Commodity Research Limited

On February 28, Bloomberg reported on a study co-authored by New York University Stern School of Business Professor Rosa Abrantes-Metz and Albert Metz, a managing director at the rating agency Moody's Investors Service. In their not yet published draft research paper, the two authors claim that "The structure of the benchmark is certainly conducive to collusion and manipulation, and the empirical data are consistent with price artificiality" and that "It is likely that co-operation between participants may be occurring". We have come to the conclusion that their findings could be explained and are not a valid proof of manipulation of the pm London gold fixing.

The authors of the study refer to unusual price activity around 3:00 pm in London when the afternoon setting of the gold price is taking place. They have not observed these trading patterns during the morning fixing. Furthermore, large price moves during the afternoon fixing were overwhelmingly to the downside. Screening intraday data from 2001 to 2013, they found those patterns from 2004 until the end of the data sample. In a telephone interview, Professor Abrantes-Metz said: "There's no obvious explanation as to why the patterns began in 2004, why they were more prevalent in the afternoon fixing and why price moves tended to be downwards." Thus, the two authors concluded in their research paper that unexplained moves may indicate illegal behaviour by the five banks involved in the gold fixing working actively together to manipulate the benchmark.

> *"There's no obvious explanation as to why the patterns began in 2004, why they were more prevalent in the afternoon fixing and why price moves tended to be downwards."*

Mainstream academic theory is that financial markets, and gold could be included in this group, are efficient. Anomalies are only temporary and as soon as the market has discovered them, they are exploited and disappear. Nevertheless, many academic studies have also found that anomalies in stock markets persist even many years after their discovery. One of those anomalies is the year-end effect, in which stocks that have already performed well during the year tend to rally further towards the year-end. The reason behind this move is that institutional investors that had been not invested in or had been underinvested in those equities buy the stock for reasons of window dressing to show in their reports that they had also held the top performers in their portfolios. This behaviour is absolutely legal and is not regarded as market manipulation. This leads to our first objection against the conclusion of Abrantes-Metz and Metz. Detecting anomalies in price behaviour might be an indication of illegal behaviour, but it is by no means evidence that prices have been manipulated.

Furthermore, that Professor Abrantes-Metz could not explain the unusual price patterns is more an indication of the authors' lack of familiarity with the gold market than an indication of price manipulation.

Ross Norman, the CEO of Sharps Pixley, has already provided a good explanation why the unusual price behaviour has been detected for the pm fixing only and not for the morning fixing. The afternoon fixing covers trading in both financial centres, London and New York, and thus provides commercial participants in the gold market with higher liquidity and, thus, the chance to get a better price. In addition, many producers are located in North America and the afternoon fixing is more convenient for their time zone. While gold at the Comex division of the CME also trades electronically during the London morning hours, the liquidity is higher at the futures exchange during the afternoon fixing. This is another reason for commercial participants to prefer to buy or sell gold at the pm fixing.

However, one might argue that with higher liquidity the occurrence of price spikes should be reduced and not increased. What might sound like a compelling argument at first quickly turns out to be flawed on closer inspection, for several reasons:

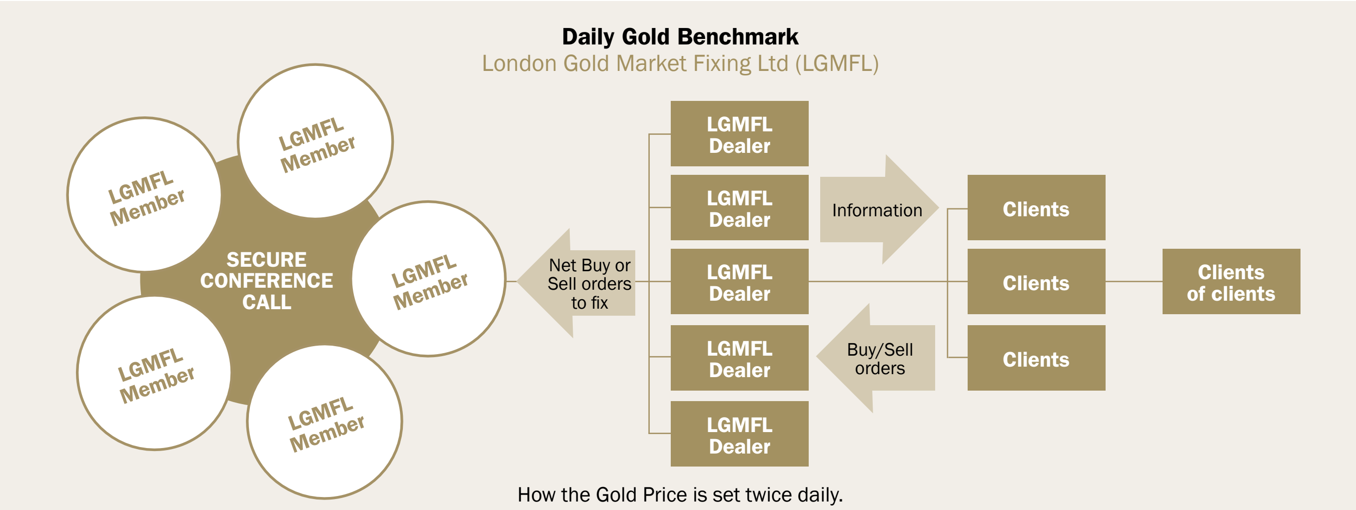
First, if a larger order has to be executed, the price impact would be greater in a less liquid market situation. Thus, a buyer or seller would still obtain the better price if it is executed in the afternoon fixing despite moving the price considerably from the level prevailing shortly before 3 pm in London.

Second, the development of the price of gold could be explained by the prices of some financial instruments and other commodities. In our quantitative fair value model, the weekly or monthly price development of gold is well explained by the S&P 500 index, the US dollar index and crude oil price. Also GARCH-X models show that these factors have an impact on the daily return and volatility of gold. Thus, we are not surprised that intraday spikes in the gold price occur during the afternoon gold fixing.

When the afternoon fixing starts in London, it is 10 am in New York (except for a couple of days during the year when the shifts to daylight savings time and back take place on different dates in spring and autumn). Some of the market-moving US economic data is released at this time. If this economic data deviates from the consensus forecast then the stock and forex markets react strongly. Sometimes, data releases confirming the consensus can also trigger stronger price moves in the stock and/or forex markets. Thus, it should not be surprising that participants at the gold fixing also react to those moves if a new price is called at the fixing, and bids and offers could be adjusted.

Also, the behaviour of institutional investors in the US stock market could provide an explanation for the price spikes at the London afternoon fixing. Trading at the NYSE starts at 9:30 am in New York. However, some studies have found that institutional investors don't enter the stock market until around 10 am –at around the time the fixing in London starts. Often the US stock market reverses direction around this time. Furthermore, a popular strategy among intraday traders is to trade breakouts of the trading range during the first 30 minutes. Price reversals and increased volatility of the US stock market could also have an impact on the price of gold during the fixing period.

Abrantes-Metz and Metz also point out that the spikes are more to the downside than to the upside. As Bloomberg has written, "on days when the authors identified large price moves during the fix, they were downwards at least two-thirds of the time in six different years between 2004



How the Gold Price is set twice daily.
Administrated by the London Gold Market Fixing Ltd (not LBMA).

and 2013. In 2010, large moves during the fix were negative 92 percent of the time." This is not really surprising if one considers who participates in the London fixing on the commercial side. During the period under investigation, many central banks had been sellers of gold. For this group, the fixing is one means to sell larger quantities and to obtain an 'official price' for their audits. But also mining companies sell their production in larger quantities at the fixing, as hedging and financing operations are often tied to the fixing price. The typical buyers such as jewellers or ETFs are less reliant on an objective price set during the fixing and could also be active in unreported spot market transactions.

> *"On days when the authors identified large price moves during the fix, they were downwards at least two-thirds of the time in six different years between 2004 and 2013. In 2010, large moves during the fix were negative 92 percent of the time."*

Another argument often used in articles and blog contributions is the movement of the gold price during the period of the fixing. But again, this is not an indication of price manipulation, but reflects more a lack of understanding. In a few articles, we even found statements that the LBMA is an exchange. However, this is not true. The London Bullion Market Association is an industry association and not an exchange. It is also not responsible for the gold and silver fixing. This misunderstanding might result in the perception that some exchanges hold auctions at certain times and call the price of this auction the fixing price. However, the London gold fixing is not an auction. At an auction, the participants submit the quantities that they would buy or sell at a certain price. These bids and offers have to be submitted at a certain time and then the price is determined that would lead to the highest quantities traded. Usually, all orders are settled at the same price. This procedure is for example applied at the Xetra trading platform of Deutsche Boerse. There, the prices of the closing auction often deviate considerably from the last price of the official trading session and, in some cases, are even outside of the trading range of the day. Nevertheless, the German watchdog BaFin, which has reviewed the London gold fixing, has not yet raised the slightest suspicion or even started any investigations that could suggest this practice might be a manipulation.

The London gold fixing is a process of price discovery. The chairman calls a price close to the actual spot quotations when the fixing starts. Then the five member banks submit the quantities they would buy and sell based on the orders of their clients or for their own accounts. For fixing the price of gold, the difference between supply and demand has to be less than 50 bars – around 620kg. This is usually not immediately the case. In the case of excess demand, a higher price is called and a lower price is called if supply exceeds demand. The five banks involved in the fixing then contact their clients with the new price called and collect new bids and offers, which are then submitted to the chairman. This process of adjustment to find the fixing price takes some time. Usually, the gold price is fixed within 10 minutes, but the fixing could last up to one hour depending on the market situation. This procedure had also been applied by official exchanges. For example, the Frankfurt Stock Exchange used this procedure for the official fixing of the Deutsch Mark exchange rates until the introduction of the euro.

However, markets do not stand still during this process. Especially, trading in the gold futures is continuous and prices are disseminated within milliseconds. This information is also available to the clients of the five banks conducting the fixing and banks active in spot gold trading display indicative bid and ask prices. Thus, when a new price is called, the clients of the banks are well informed about the current market situation and can adjust the quantities they want to buy or sell at the new price called accordingly. Usually, the banks don't know the exact quantities their clients want to buy or sell in total when a new price is called.

If one defines market manipulation as an attempt to move the price to a certain level, the five banks would have to agree on this price before the fixing starts. In order to push prices artificially lower, this would also require that they were willing to sell an unknown quantity of gold, which would expose them to significant price risk. At best, they might know the total quantity supplied and demand at the first price called. That gold is not fixed at the first call and that prices move and more new prices are called is not an indication of price manipulation. Just the opposite, it is an indication of no wrong doing by the fixing group!

All in all, we come to the conclusion that the findings of Professor Abrantes-Metz and Metz could be well explained and are not a valid proof of manipulations at the pm London gold fixing. Normally, a flawed academic research paper is not a problem. However, Professor Abrantes-Metz advises the European Union on financial benchmarks. If this research paper leads to accusations against the five banks of the London gold fixing and the EU imposing fines, then it would be a scandal.

Peter Fertig, Director, QCR Quantitative Commodity Research Limited Before founding QCR - Quantitative Commodity Research Limited in June 2007, Peter worked for over 20 years in the research department of Dresdner Kleinwort. He was Chief Fixed Income Strategist at Dresdner Kleinwort. As a strategist he covered commodity markets, focusing on precious and base metals. Within that framework, he gave presentations to institutional investors worldwide. He has also commented on market developments on TV and is regularly interviewed by Reuters and Bloomberg. He also holds workshops on quantitative analysis of commodity markets.

Because you need precious metals solutions, we offer trusted global insight and expertise

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery services
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 207 444 9075
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

This communication is issued by Commerzbank. Commerzbank AG, London Branch is authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request. Copyright © Commerzbank AG 2014.

COMMERZBANK
The bank at your side

2014 Forecast Summary

By Aelred Connelly, Public Relations Officer, LBMA

Metal	Average Price in 1st Week January 2014 (2-9 Jan incl)	Average 2014 Forecast	2013 Year Average
Gold	$1,230	$1,219	$1,411
Silver	$19.87	$19.95	$23.79
Platinum	$1,406	$1,490	$1,487
Palladium	$732.00	$774.81	$725.29

Forecast contributors are predicting gold and silver prices to remain broadly flat during 2014, but are more bullish about the prospects for PGMs, forecasting modest increases in price for both metals.

The gold price closed 2013 at $1,201.50/oz, 28% lower than in the first week of the 2013, bringing to an end 12 years of consecutive price growth. On average forecast contributors are expecting gold prices to remain broadly flat in 2014, which contrasts with a much more bullish outlook in recent years. Analysts are forecasting average gold prices to be $1,219/oz, 0.9% lower than the first week of 2014, and to trade in an average range of $1,067 to $1,379 during 2014.

Analysts cite the possible strengthening in the US dollar, the extension of US tapering of QE into 2014, weak global inflationary pressures, over supply of gold and further possible ETF liquidation as factors which could restrain gold prices. But the price could be supported by continued strong demand from China, a relaxation in India's import duties as well as the prospect that low prices could constrain mine output and supply of scrap. So an increase in price cannot be ruled out particularly if such "positive" influences take centre stage.

Of the four metals, silver was the worst performing in 2013, ending the year 36% lower. But analysts expect silver prices to follow the lead of gold and stabilise in 2014 to an average price of $19.95, broadly flat compared to its price at the start of the year.Contributors also think that silver will be the most volatile of the four metals, trading in an average range of $16.37 to $23.94. Prices could come under strain because of the large surplus supply in the silver market and industrial demand for silver could be hit if global GDP growth is weak. The added risk is that if prices weaken this might encourage silver ETF holders to liquidate their positions, which would depress prices further. But forecasters also think that prices could benefit from strong global industrial growth, particularly from the photovoltaic sector, which may also attractinvestor interest to offset some of the possible downside factors.

Analysts are more bullish about the prospects of the PGM metals, and expect both metals tofinish the year above their average price in 2013, as well as their price at the start of 2014. Analysts predict that platinum prices will average $1,490 in 2014, 6% higher than its price at the start of the year, and to trade in the range $1,300 to $1,650. The prospect of disruption to supplies from strikes and industrial unrest combined with growth in photovoltaics and autocatalyst demand are cited as factors which could help support prices.

Forecast contributors also expect the palladium price to benefit from shortage of supply, particularly given limited mine supply and waning exports from Russian state stocks. Coupled with anticipated strengthening from sales to the automotive gasoline sector, analysts are forecasting palladium prices to average $774.81 in 2014, up 5.8% from where it started the year and around $50 above its average price in 2013.

To find out more about what will happen to prices for precious metals this year, and what the factors are likely to affect their price, read the views of the experts in the Full Forecast Survey which is available now on the LBMA website.

Forecast 2013 Review

Metal	2012 Average Price	Average price in 1st week of January 2013 (a)	Average Forecast 2013	Actual 2013 Year Average	2013 Winning Forecast	2013 Forecast Winners	Company
Gold	$1,669	$1,665	$1,753	$1,411	$1,600	René Hochreiter	Allan Hochreiter (Pty) Ltd
Silver	$31.15	$30.36	$33.21	$23.79	$27.00	René Hochreiter	Allan Hochreiter (Pty) Ltd
Platinum	$1,552	$1,575	$1,682	$1,487	$1,538	Glyn Stevens	INTL Commodities
Palladium	$644.33	$689.64	$744.03	$725.29	$725.00	Tom Kendall	Credit Suisse

The London Bullion Market Association is delighted to congratulate the winning analysts in the 2013 Precious Metals Forecast. The aim of the Forecast Survey is for contributors to predict, as accurately as possible, the average price and range (low and high price) for the year ahead for the four main precious metals. The prediction closest to the average price wins (based on the average $ daily pm fixing price). In the event of a tie the most accurate forecast range is taken into account. Congratulations to the four winning analysts. The most impressive performance came from René Hochreiter who scooped two prizes for both gold and silver. Glyn Stevens claimed the prize for platinum and Tom Kendall picked up the winning prize for palladium.

After many years of accurately forecasting the price direction for all metals, many contributors were caught out last year by the collapse in the average price during 2013 (compared to the prices in the first week of 2013), with gold falling 15%, silver by 22% and platinum by 5.5%. This meant that the average forecasts were significantly out of line with the actual average prices for the year, particularly gold which was astray by -$342. Only palladium ended the year higher than it started it (+5.2%).

So it certainly paid to err on the bearish side. But with most analysts adopting a bullish perspective, it was not surprising that the winning forecasts for gold, silver and platinum went to those analysts who had forecast the lowest average prices, even though they were still some way off the actual price for the year. By far the most accurate forecast came in the palladium category with Tom Kendall forecasting the price within 29 cents of the actual average price.

Arguably the most unlucky analyst in this year's survey was Eddie Nagao, who finished runner up in three categories (gold, silver and palladium). Eddie even forecast the same price as Tom for palladium but lost out in a tie break because of a wider price range.

The LBMA is grateful to Metalor Technologies SA for its generous donation of four 1 oz gold bars which were awarded to each of the 2013 Forecast winners.

2013 Forecast winners, Glyn Stevens and Tom Kendall collecting their prizes of a 1 oz gold bar from Ruth Crowell, Chief Executive of the LBMA. Rene Hochreiter is based in Johannesburg and was unfortunately unable to accept his two prizes in person.

An Historical Review of the LBMA's Precious Metals Forecast Survey

By Aelred Connelly, Public Relations Officer, LBMA

Can you recall the momentous events of 1997? If you are struggling, let me jog your memory. Tony Blair wins a landslide victory at the General Election bringing to end 18 years of Conservative power. The UK transfers sovereignty of Hong Kong, the largest remaining British colony, to the People's Republic of China. The IRA declares a ceasefire in Northern Ireland. Diana, Princess of Wales, dies in a car crash in Paris. Bill Clinton is relected as US president. But these events are a mere sideshow to the most momentous event of 1997 - the launch of the LBMA's Annual Precious Metals Forecast Survey.

The Survey began life as an *Alchemist* article in 1997. A dozen participants contributed trading range forecasts for gold and seven for silver, as well as providing their thoughts on general market trends for the year ahead. With the pm gold price starting the year at $366.55 analysts predicted that gold would trade during 1997 in the range $330 -$405. The average price for the year out turned at the bottom end of the range at $331.3, down 9% on the year. For silver, with the price starting 1997 at $4.77, analysts forecast that the price would be in the range, $3.80 to $5.00. The actual average price for 2007 out turned towards the top of the range at $4.89, marginally up on the year.

Among the first contributors were Andy Smith (then of UBS), Ted Arnold (Merrill Lynch & Co), Serge Topolanski (Societe Generale), Tom Griffo (Cargill Investors Services Inc.) and Rhona O'Connell (T. Hoare & Co Ltd). And the Survey was truly international with contributors located in New York, Hong Kong, Tokyo, Sydney, Johannesburg and closer to home, Paris, Zurich and London. The international dimension to the Survey continues to this day even if the contributors have changed. Rhona is the only person from the original group of analysts who is still contributing.

For the 1998 Forecast Survey, the arrangements became more formalised. In addition to providing a forecast high and low in each metal for the year ahead, contributors were asked to provide an average forecast price for each metal. For the first time, a 1 oz gold bar was awarded to the contributor whose average came the closest to the actual average price for both gold and silver. In the event of a tie, the forecast trading range was taken into account. These rules continue to apply today.

In 1999 with the survey growing in size and popularity, it divorced from the *Alchemist* and became a separate publication. That year the number of contributors swelled to two dozen contributors in gold and 20 in silver. Since then, the number of contributors has continued to grow. For the latest 2014 Survey, there were 28 analysts contributing to gold and 25 to silver. In 2002, the Survey was extended to include two more precious metals, platinum and palladium. So contributors now had twice as much chance of winning a prize (or twice as little chance, depending on how you look at it). Since 1998, there have been a total of 56 prizes awarded to 31 different analysts.

There have been six analysts who have each won two prizes in the same year. Matthew Turner began the trend in 2004, securing the first prize for gold and palladium. He was followed by Ross Norman in 2007 (silver and platinum); Bob Takai in 2008 (silver and palladium); Philip Klapwijk in 2009 (gold and silver); Rohit Savant in 2011 (platinum and palladium) and most recently Rene Hochreiter in 2013 (gold and silver).

The LBMA's Public Affairs Committee is responsible for carefully considering all applications to contribute to the Survey. The decision whether to approve an application is

Table 1: The Precious Metals Premiership Table, 1998 to 2013

		Total number of forecast contributions (a)	1st	2nd	3rd	TOTAL
1	Norman, Ross	48	5	4	3	26
2	Klapwijk, Philip	52	5	2	3	22
3	Hochreiter, Rene	36	5	2	1	20
4	Panizzutti, Frederic	48	3	1	5	16
5	Takai, Bob	48	4	0	1	13
6	Kendall, Tom	24	3	0	2	11
6	Reade, John	27	1	3	2	11
6	Smith, Andy	24	2	2	1	11
9	Steel, James	28	1	3	1	10
9	Stevens, Glyn	18	2	1	2	10
11	Turner, Matthew	34	3	-	-	9
12	Hawkes, Neil	15	2	1	-	8
12	Holmes, David	12	2	1	-	8
14	Lasserre, Frederic	12	1	2	-	7
14	Savant, Rohit	12	2	-	1	7
14	Williamson, Alan	20	1	1	2	7
17	Jollie, David Dr	12	1	1	1	6
17	Nagao, Eddie	8	-	3	-	6
17	Naqvi, Kamal	22	-	2	2	6
20	Aubertin, Philip	4	1	1	-	5
20	Briggs, Stephen	24	1	1	-	5
20	Fertig, Peter	20	1	1	-	5
20	Graf, Adam	12	1	1	-	5
20	Rhodes, Jeffrey	28	1	1	-	5
20	Zumpfe, Alexander	16	-	2	1	5
26	Arnold, Ted	8	-	1	2	4
26	Bahr, Robin	20	1	-	1	4
26	Christian, Jeffrey	40	1	-	1	4
26	Firman, Carl	8	-	1	2	4
26	McCaffrey, Helen	6	-	2	-	4
26	Proettel, Thorsten	8	1	-	1	4
26	Tully, Edel	28	1	-	1	4
26	Widmer, Michael	8	-	1	2	4

(a) The number of forecasts is based on the following. Between 1998 and 2001, forecasters could only submit forecasts for gold and silver. After 2002, they could submit forecasts for platinum and palladium too. Most contributors submit forecasts for all metals, although some submit for only one or a combination thereof. Some contributors sometimes intermittently change from submitting forecasts for all metals to forecasting one or two. When moving between jobs, some analysts stopped contributing for a year and then started again. Those shaded no longer contribute to the Survey.

based on a combination of the relevant expertise, the analytical and forecasting ability of the individual concerned, as well as the reputation and standing of the institution that they represent. Such an application process ensures the continued integrity of the Forecast Survey as one of the most prestigious Surveys in the precious metals market.

Table 1 is based on a scoring system that takes into account first, second and third place finishes in each of the four metal categories between 1998 and 2013. Three points have been awarded to the winner, two points for runners up and one point for finishing third. This is certainly fairer than simply concentrating on the number of 'wins' as there are several contributors who have lost out on the winning prize by the narrowest of margins in recent years. Based on this scoring system, 64 contributors have earned at least one point, although owing to space constraints only those contributors who have scored four points or more feature in the table. Those contributors who appear as shaded in the Table no longer contribute to the Survey.

Top of the pile is Ross Norman, closely pursued by Philip Klapwijk and Rene Hochreiter, each of them having won an impressive five 1 oz gold bars. But Ross is out in front by virtue of more 2nd and 3rd place finishes. In an exciting fight for the top spot, this is the precious metal market's equivalent of the English football Premiership where three clubs, Arsenal, Manchester City and Chelsea are currently vying for top spot.

It will certainly be interesting to see who fares best in the 2014 Survey. The average gold price that forecasters have predicted is $1,219. Ross is the only one of the top three to expect the price to be higher, going with a forecast of $1,274. Both Rene and Philip are more conservative, with bearish predictions of $1,150 and $1,176 respectively. Indeed, they have all adopted a similar stance with their forecasts for the other three metals. Only time will tell whether the relatively bullish forecasts of Ross will help him cement his position at the top of the table or whether the chasing pack will close down his lead.

They say that there are "*lies, damn lies and statistics*", so perhaps I should add some caveats. It is worth noting that some analysts have contributed more forecasts than others. It is therefore not surprising that the top places in the table are dominated by long-standing contributors, which makes the performance of relative newcomers such as Rene Hochreiter (3rd), Tom Kendall (joint 6th) and James Steel (joint 9th) worthy of particular attention. It is certainly possible that they would be even higher up the table had they participated in more surveys. This comment equally applies to other contributors, in particular John Reade and Andy Smith, who both lie in joint 6th place, despite not having contributed to the survey in recent years. Perhaps they should start doing so again! Others worthy of particular mention are Phil Aubertin in 20th place despite having only participated in one survey. In 2010, Phil managed to win the gold prize and finish second for platinum. Adjusting the scores to show the number of points per forecast would see Phil out in front by some way (more on that later). A mention should also go to Glyn Stevens who lies joint ninth place in the table despite only providing forecasts for two metals (platinum and palladium).

Interpretation of the results is very subjective and the scoring could be manipulated in many different ways to take into account any number of other factors but basing the placings on points earned from the top three placings is certainly a simple and reasonably fair approach. An alternative approach would be to show the points earned relative to the number of forecasts that each analyst has participated in. Table 2 shows how many points contributors have scored (based on the scoring mechanism in Table 1) per forecast contribution. Not surprisingly, Phil Aubertin comes out on top having earned 5 points from the four forecast contributions in 2010, earning him an average score of 1.25 per forecast contribution. Unlike Table 1, the top of the table shows a bias towards those who have participated in relatively few Surveys, so it could be argued that there is a bias from such a small data sample. Of those who featured at the top of Table 1, Rene Hochreiter and Ross Norman also feature in the top 10 on the adjusted ratings. The bottom half is dominated by those who have been frequent contributors. And talking of which, if you are in the bottom half of the table, don't forget there are many more contributors who did not even make it onto the table as they had scored 3 points or less (some none at all but they will remain nameless!).

The best of luck to all participants in the 2014 Precious Metals Forecast Survey and particularly to Jonathan Butler, Carsten Fritsch, Sonia Hellwig, Nikos Kavalis, Mitul Kotecha and Edward Mier who are all contributing to the Survey for the first time. Let's hope they can pick up some points and make it onto the table next year.

The results of the 2013 Survey and a preview of the 2014 Survey can be found on page 17. And watch out for the next edition of the *Alchemist* as I will be undertaking a historical review comparing how contributors' forecasts stack up against the actual price outturns.

Table 2: Points per forecast contribution, 1998 to 2013

		Total number of forecast contributions (b)	1st	2nd	3rd	TOTAL	Points per forecast
1	Aubertin, Philip	4	1	1	-	5	1.25
2	Nagao, Eddie	8	-	3	-	6	0.75
3	Holmes, David	12	2	1	-	8	0.67
3	McCaffrey, Helen	6	-	2	-	4	0.67
5	Lasserre, Frederic	12	1	2	-	7	0.58
5	Savant, Rohit	12	2	-	1	7	0.58
7	Hochreiter, Rene	36	5	2	1	20	0.56
7	Stevens, Glyn	18	2	1	2	10	0.56
9	Norman, Ross	48	5	4	3	26	0.54
10	Hawkes, Neil	15	2	1	-	8	0.53
11	Arnold, Ted	8	-	1	2	4	0.50
11	Firman, Carl	8	-	1	2	4	0.50
11	Jollie, David Dr	12	1	1	1	6	0.50
11	Proettel, Thorsten	8	1	-	1	4	0.50
11	Widmer, Michael	8	-	1	2	4	0.50
16	Kendall, Tom	24	3	0	2	11	0.46
16	Smith, Andy	24	2	2	1	11	0.46
18	Klapwijk, Philip	52	5	2	3	22	0.42
18	Graf, Adam	12	1	1	-	5	0.42
20	Reade, John	27	1	3	2	11	0.41
21	Steel, James	28	1	3	1	10	0.36
22	Williamson, Alan	20	1	1	2	7	0.35
23	Panizzutti, Frederic	48	3	1	5	16	0.33
24	Zumpfe, Alexander	16	-	2	1	5	0.31
25	Naqvi, Kamal	22	-	2	2	6	0.27
25	Takai, Bob	48	4	0	1	13	0.27
27	Turner, Matthew	34	3	-	-	9	0.26
28	Fertig, Peter	20	1	1	-	5	0.25
29	Briggs, Stephen	24	1	1	-	5	0.21
30	Bahr, Robin	20	1	-	1	4	0.20
31	Rhodes, Jeffrey	28	1	1	-	5	0.18
32	Tully, Edel	28	1	-	1	4	0.14
33	Christian, Jeffrey	40	1	-	1	4	0.10

(b) The number of forecasts is based on the following. Between 1998 and 2001, forecasters could only submit forecasts for gold and silver. After 2002, they could submit forecasts for platinum and palladium too. Most contributors submit forecasts for all metals, although some submit for only one or a combination thereof. Some contributors sometimes intermittently change from submitting a forecast for all metals to forecasting one or two. When moving between jobs, some analysts stopped contributing for a year and then started again. Those shaded either ceased contributing in recent years.

LBMA Charitable Donations

By Aelred Connelly, Public Relations Officer, LBMA

Since it was formed in 1987, the LBMA has made donations each year to a range of charitable causes. In 2001, the charitable giving was put on a firmer footing when a system of fines was agreed with contributors to the 11:00 forward curves whereby they would pay a fine if they failed to contribute more than three times in a calendar month. In the last 12 years the LBMA has paid more than £90,000 in donations to charitable causes.

These initially consisted of donations to charities in memoriam of past members of the market but was then widened to include charities associated with members of the Association and more recently to also support charities dealing with international disasters and humanitarian causes.

In recent years, income from forward curve fines has tailed off and the Management Committee agreed that the charitable donations should continue using the LBMA's own funds. In 2013, the LBMA donated £5,000 to each of the following charities:

- **The Charity of William Hobbayne** was established in 1484 to help care for the poor. It runs a community centre and provides grants to the poor, elderly and homeless people in the Hanwell area of west London. David Jollie, a member of the LBMA's Public Affairs Committee, is closely associated with the work of the charity.
  www.hobbaynecharity@btinternet.com

- **Epilepsy Action** is the UK's leading epilepsy organisation and exists to improve the lives of everyone affected by the condition. It is a member-led organisation represented by people suffering from epilepsy, their friends, families and healthcare professionals. The donation was made in memoriam of Christian Pfiefer, of Jefferies Bache, who died on 19 April 2013.
  www.epilepsy.org.uk

- **DEC Red Cross Philippines typhoon fund**. The donation was made to assist the work of the Red Cross in supporting those affected by the Haiyan typhoon, which left a trail of destruction across the Philippines and 4 million people homeless.
  www.redcross.org.uk

Previous LBMA Donations

In previous years, the LBMA has made donations to the following charities:

Action Aid, a charity with projects in more than 40 countries, provides food, shelter, work, healthcare and education for the needy.

Arthritis Research works to take the pain away from people living with all forms of arthritis and help them to remain active. It funds high-class research, educating health care professionals and providing information to people with arthritis and their carers. The donation was made in memoriam of Chris Saubergue.
www.arthritisresearchuk.org

Cancer Research funds scientists, doctors and nurses to help beat cancer sooner as well as providing cancer information to the public. The donation was made in memoriam of Terry Smeeton, former Head of Gold & Foreign Exchange at of the Bank of England, who died on 12 September 2007. Later, in 2008, the LBMA contributed to the fund-raising efforts of David Longhurst's daughter, Sarah, who ran in a sponsored race called 'Race for Life', raising £27,360 for cancer research.
www.cancerresearchuk.org

Chad Relief Foundation (CRF) is an independent non-profit, non-governmental organisation whose objective is to provide assistance to refugees from the Central African Republic in South Chad.
www.chadrelief.org

Childhope is a children's charity that supports street children and working children.
www.childhope.org.uk

Crohn's and Colitis UK is the working name for the National Association for Colitis and Crohn's Disease (NACC). Founded in 1979, the charity provides information and support, funds research and brings together people of all ages who have been diagnosed with IBD, their families and friends, and the professionals involved in their care. The donation was made to Ross Norman who was running in the Great North Run to support the charity. It took Ross just three days, four hours and 27 minutes to complete the Great North Run. The only run he has managed since is running for his train at Liverpool Street.
www.crohnsandcolitis.org.uk

Essex Spina Bifida supports those affected by spina bifada and offers wider support to the families of those suffering from the condition. The donation was made in memory of Andy Hoare's son.

Friends of Hillside is a special community school that caters for pupils who have severe, profound and multiple learning difficulties, some of whom have specific sensory, physical and behavioural conditions.
www.hillsidespecial.org.uk

One of the many events organised by Epilepsy Action Charity

Kids Get Going provides sports wheelchairs for children and young adults, encourages participation in sports, and assists with the design and development of wheelchairs. The donation was made to Alan Wallis of Comdaq, who was running the London Marathon in support of the charity.
www.kidsgetgoing.com

Hospice Association of the Witwatersrand, based in Johannesburg, South Africa. Originally set up by Stan and Shirley Henen to provide hospice care and support for the local community. It became known as Greendale House and now has more than 150 full-time staff, including doctors, nurses, social workers and psychologists.
www.hospicewitwatersrand.org.za

Japan Tsunami Appeal set up by the British Red Cross to support those affected by the tsunami that hit the east coast of Japan in March 2012.
www.redcross.org.uk

Jennifer Trust supports those affected by Spinal Muscular Atrophy (SMA). It provides free information and ongoing support to families affected by SMA.
www.jtsma.org.uk

LOOK provides support and information to improve the lives of families with visually impaired children and young people by providing support, expert advice and activities to help those affected to reach their full potential.
www.look-uk.org

One of the many activities supported by the William Hobbayne charity.

St Mungo's supports thousands of homeless people in London and the South of England by providing sheltered accommodation in hostels and specialist services to tackle specific issues, for example, poor health, dependency and unemployment. It also runs an emergency service to help people on the streets in desperate situations.
www.mungos.org

Starfish Greatheart Foundation is an international development charity that brings life, hope and opportunity to children who have been orphaned or made vulnerable by HIV/AIDS.
www.starfishcharity.org

Forthcoming LBMA Member Events in 2014

In addition to the Singapore Forum in June (see advert on page 13) and the annual Conference in Lima in November (see advert on page 22), members of the LBMA may wish to mark in their diaries the following events during 2014.

Annual General Meeting
Glaziers Hall – 11 July 2014

The LBMA's AGM will take place at 16:30 at Glaziers Hall, 9 Montague Close, London Bridge, London, SE1 9DD.

This will be followed by an informal drinks reception at 17:30. See LBMA News on page 24 for further details.

LPPM/LBMA Cocktail Reception
New York – 18 September 2014

The LPPM, together with the LBMA, will be holding a joint Cocktail Reception for their members and invited guests on Thursday 18 September 2014 from 17:30 to 20:00, in the Villard Ballroom, New York Palace Hotel.

Any members wishing to receive an invitation please contact admin@lppm.com

LBMA Biennial Dinner
Guildhall – 1 December 2014

The LBMA's biennial dinner will be held this year at the Guildhall, Gresham Street, PO Box 270, London, EC2V 7HH.

There will be a Cocktail Reception at 18.30 followed by dinner at 19.30.
As usual, this will be a black tie event, and is open to Members, Associates and their guests.

DIARY OF EVENTS 2014

MARCH

17-20
10th Asia Mining Congress
Singapore
www.terrapinn.com/2014/

APRIL

6-7
Dubai Precious Metals Conference 2014
Dubai, UAE
www.dpmc.ae/

8-11
Denver European Gold Forum
Zurich, Switzerland
www.europeangoldforum.org/egf13/

MAY

12-13
Metals & Minerals Conference
New York, USA
www.metalsandmineralsevents.com/ny

19-23
LPPM Platinum Week
London, UK
www.lppm.com

20-22
11th International Gold & Silver Symposium
The Westin Lima Hotel & Convention Centre
Lima, Peru

29-30
Hong Kong Precious Metals Summit
Hong Kong, China
www.precioussummit.com/

JUNE

7-10
IPMI 38th Conference
JW Marriott Grande Lakes, Orlando, Florida
www.ipmi.org

24-25
LBMA Bullion Market Forum
Singapore
Marina Bay Sands Hotel, Singapore
events@lbma.org.uk

JULY

11
LBMA AGM
Glaziers Hall, London
events@lbma.org.uk

AUGUST

4-6
Diggers & Dealers Forum 2014
Kalgoorlie, Australia
www.diggersndealers.com.au/

11-14
XII International Platinum Symposium
Yekatennburg, Urals
Russia
http://conf.uran.ru

SEPTEMBER

10-12
China Gold Congress & Expo 2014
Beijing, China
www.china-gold.org/en

10-12
Precious Metals Summit
Park Hyatt Beaver Creek
Colorado, USA
www.precioussummit.com

14-17
Denver Gold Forum 2014
Hyatt Agency, Denver, CO, USA
www.denvergold.org/gold-forums/

17
CME Group Precious Metals Dinner
New York, NY
www.cmegroup.com/metals

18
LPPM/LBMA Cocktail Reception
New York Palace Hotel, New York
admin@lppm.com

18
IPMI's 2nd NY Platinum Dinner
New York Palace Hotel, New York
www.ipmi.org/

22
International Mining Conference
Melbourne, Australia
www.imarcmelbourne.com/

OCTOBER

20-23
LME Week
London, UK
www.lme.com/lmeweek.asp

20-23
China Mining Congress & Expo
Tianjin Meijiang Convention & Exhibition Center
Xiqing District, China
www.chinaminingtj.org/en/

NOVEMBER

4-5
Europe Precious Metals Summit
Switzerland
www.precioussummit.com/

9-11
LBMA Precious Metals Conference 2014
Western Lima Hotel & Convention Centre, Lima, Peru
www.lbma.org.uk

DECEMBER

1
LBMA Biennial Dinner
Guildhall, London
events@lbma.org.uk

The Conference by the industy for the industry

The LBMA Precious Metals Conference 2014

9 - 11 November 2014
Westin Lima Hotel & Convention Centre, Lima, Peru

LBMA

Regulation Update

– The LBMA's Responsible Gold Programme

By Ruth Crowell, Chief Executive, LBMA

Since the publication of the last *Alchemist*, the following refiners have successfully passed the LBMA's Responsible Gold Audit Programme:

- Aurubis AG, Hamburg, Germany
- C. Hafner GmbH + Co. KG, Pforzheim, Germany
- Heraeus Ltd, Fanling, Hong Kong
- Heraeus Precious Metals GmbH & Co. KG, Hanau, Germany
- Ishifuku Metal Industry Co., Ltd, Soka Saitama, Japan
- LS-NIKKO Copper Inc, Onsan, Korea
- Rand Refinery (Pty) Limited, Germiston, South Africa
- Republic Metals Corporation, Miami, USA
- SEMPSA Joyería Platería SA, Madrid, Spain

The refiners listed above have successfully passed an LBMA independent third-party audit for 2012 production, confirming they comply with the LBMA's Responsible Gold Guidance. The audit reviewed the refiners' production over a 12 month period.

At the end of 2013, the LBMA received an overwhelming number of audit reports from Good Delivery refiners. Of the 68 existing Good Delivery Gold Refiners on the List, 53 have undergone a Responsible Gold audit. The outstanding 15 refiners are in contact with the LBMA. Some of them have requested and received an extension to combine their 2012 & 2013 audits. Others had an automatic extension given they had a later financial year. All Good Delivery Gold Refiners were given twelve months following their 2012 financial year close to undergo a Responsible Gold audit. For some refiners, this means submission by 31st March, 2014. While low level instances of non-compliance were identified, on the whole the Good Delivery List received positive reviews from the auditors, with no instances of zero-tolerance having been identified.

The LBMA has encouraged the outstanding refiners to undergo a Responsible Gold audit as soon as possible, regardless of financial year. This is to assist any US clients who need to meet the conflict mineral rules for Dodd-Frank Section 1502.

Through mutual recognition of other industry initiatives, the LBMA also recognises that refiners have achieved compliance with the Responsible Gold Guidance by achieving either the Responsible Jewellery Council's Chain-of-Custody certification or Electronics Industry Citizenship Coalition (EICC) CFSI audit protocol.

Responsible Gold Guidance – Background

The LBMA has taken its role as accreditor of the world's gold refiners and expanded the scope of its requirements, to include OECD Due Diligence, by the creation of the Responsible Gold Guidance. The Guidance operationalises and extends the OECD Gold Supplement for refiners and builds on existing Anti-Money Laundering and Know Your Customer management systems and auditing practices. It also makes what is a voluntary system (the OECD Guidance) mandatory for all LBMA Good Delivery gold refiners wishing to be accredited for the London Bullion Market. This framework is intended to assure investors and consumers that all London gold stocks are conflict-free due to compliance with an audited, conflict-free process. The Guidance however, goes beyond conflict and also addresses other responsible sourcing issues such as money laundering and terrorist financing.

ICGLR-OECD-UN GoE Joint Forum on Responsible Mineral Supply Chains

The next OECD meeting on Responsible Mineral Supply Chains will take place in Paris, during the period 26-28 May. The LBMA will update Members and Refiners as to the schedule of the meeting when it is announced.

LBMA News

By Ruth Crowell, Chief Executive, LBMA

MEMBERSHIP

On 16 December, Trafigura PTE Ltd was admitted as an Associate.

GOOD DELIVERY LIST

On 19 December 2013, the gold refineries of Nihon Material Co., Ltd of Japan and Ohio Precious Metals, LLC of USA were admitted to the Gold List.

On 27 January, the silver refinery of SAXONIA Holding GmbH of Germany was added to the Silver List. Additionally on 17 February, the gold refinery of Republic Metals Corporation of the USA was admitted to the Gold List.

COMMITTEES

Management Committee

As well as reviewing the work of the Sub-committees below, the Management Committee held one of its regular strategy sessions in December to discuss the challenges facing the industry and the future vision for the association. One key decision from that meeting was to revisit Membership criteria with a view to allow more refiners to become Full Members of the Association. Another key point was to have more involvement and focus on the international bullion market. This influenced the decision to hold a Singapore Bullion Market Forum on 25 June in addition to the annual Conference in Peru later in the year.

The Committee has also grappled with deciding the best way forward for the LBMA's involvement in forward benchmarks. Having formalised procedures in order to meet July deadlines for IOSCO compliance, the Committee is investigating a number of options, including the future administration of the GOFO benchmark.

Regulatory Affairs Committee

The Regulatory Affairs Committee has focused primarily on ensuring that GOFO and the end of day Forward Curves are compliant with the IOSCO benchmark principals. This has involved formalising the contribution and administration procedures for both datasets. The LBMA has created a mandatory Code of Conduct which Forward Market Makers will be contractual obligated to follow. It has also drafted a Best Practice documents for contributors to follow for their own internal controls.

The other main area of focus for the RAC has been the Responsible Gold Guidance. For further information, please see the Regulation Update on page 23.

Finally the RAC has also reviewed the recent draft regulation for CFTC position limits as well as Basel III implementation which was announced earlier in the year..

Physical Committee

In its three meetings during the first quarter of 2014, the Committee has continued to monitor a record number of applications for Good Delivery accreditation. Including the two refiners mentioned above which achieved accreditation in this period, the Executive has been processing six gold applications and seven silver applications from refiners in seven different countries. In addition, ten refiners are currently preparing applications which are yet to be submitted.

A new version of the Good Delivery Rules was recently uploaded onto the website. This edition, officially dated December 2013, contains a substantial number of changes and clarifications. These are shown in detail in the preamble to the Rules and are also included in a pdf document showing the history of all the versions of the Rules since 1934 which is also available in the Good Delivery section of the LBMA website. The Committee also oversees the LBMA's Proactive Monitoring of existing refiners. Recently a number of related issues have been addressed, including the impact of currency changes on refiners' tangible net worth, assaying accuracy and bar quality.

In relation to the work of the London market vaults, further progress has been made in the development of an accreditation scheme for vault staff. This will involve both online learning and testing of vault operators. Also in the vaulting area, there is another recent addition to the website in the form of an application form which can be used by member companies with vaults who wish to apply for Approved Weigher status. This form describes both the information that needs to be provided by such applicants and the procedure which is followed by the Executive for assessing their weighing competence.

The Physical Committee works closely with the Referees group which met in London to consider a number of technical matters related to the Good Delivery System. The main topic was the programme for the next Assaying and Refining Seminar which will be held in London in mid-March 2015. Referees considered the draft report on the third annual Proficiency Testing Scheme for fire assayers, in which 41 laboratories participated, including, for the first time, those of some of the Supervisor companies. The group also reviewed progress with AuRM3 (the latest gold reference material to be produced under the auspices of the LBMA). This has a fineness of approximately 995 with certified quantities of 12 of the elements commonly found in such gold. The project steering committee under the chairmanship of Dr Mike Hinds of the Royal Canadian Mint is currently reviewing the analytical results provided by the 11 participating laboratories and it is expected that the reference materials will be available for delivery to advanced purchasers by June.

Public Affairs Committee

The PAC have been focusing their attention on the planning of the next conference, which will be held at the Westin Lima Hotel & Convention Centre in Lima, Peru on 9-11 November, 2014. This will be the first time that the LBMA has held its conference in Latin America and represents the fulfilment of a promise made to the Peruvian industry in 2009 (when the financial crisis resulted in the conference being switched to Edinburgh). The Committee are in the process of preparing the speaker programme for the conference taking into account feedback received from delegates attending the conference in Rome. In addition, the Committee are looking at ways to improve both the networking opportunities as well as the use of technology at the conference.

The Committee is also assisting with the preparations for a Bullion Market Forum which is to be held in Singapore on 25 June, 2014. The forum will be held at the Marina Bay Sands Hotel in Singapore. The purpose of the forum is to focus on and encourage the development of the Singapore bullion market. Registration opens in March and programme details will follow in due course. Similar meetings have been held in the past in Moscow, New Delhi and Shanghai to focus primarily on local bullion market issues.

The Committee has also agreed to again hold a joint cocktail reception with the LPPM on 18th September, in New York, for their members and invited guests. This will be along similar lines to the one held in New York last year. Please see page 21 for details.

The PAC approved three charities last year to benefit from the LBMA's charitable fund. Full details can be found in the article on page 20.

Finance Committee

The main focus of the Finance Committee has been helping to prepare for the 2013 audit which will be presented to the Committee by the auditors at its next meeting in April, when it will also consider, for approval, the 2014-15 forecast budget. The Committee has also been reviewing the budget for LBMA events scheduled during 2014.

Annual General Meeting

The Annual General Meeting of the LBMA will take place in

Glaziers Hall, 9 Montague Close, London Bridge on Friday, 11th July at 16:30. This is an ideal opportunity for any interested staff in Member and Associate companies to hear about what the LBMA has been doing and to meet representatives of other member companies. This year it will be the turn of the four Ordinary member representatives to be elected (or re-elected). In line with the usual procedures the documentation including nomination forms for the management committee election will be circulated to the LBMA contact in each member company in advance of the meeting. The AGM will, as usual, be followed by an informal drinks reception at 17:30.

LBMA Staff
Sunny Field will join the LBMA Executive as its new Operations Director on 12 May. Prior to joining the LBMA, Sunny acted as Operations Manager at Mitsubishi Corporation International (Europe) Plc.

Another staff change to report is the recent appointment of Juliet Pithers as the LBMA's Finance Officer. Juliet is responsible for all finance related matters including preparation of management and end year accounts, budgets, forecasts and VAT returns.

Market Moves

Peter Macho joins ANZ
Peter Macho has joined ANZ to work in Sydney as a senior metals trader to manage flow and pricing inquiries from the bank's Asia/Pacific clients and sales teams. The Sales/Trading desk in Sydney now comprises John Levin, Nick Socratous and Peter Macho, with a combined precious metals experience of over 65 years between them.

Wallace Ng joins Gerald Metals
Gerald Metals is pleased to welcome Wallace Ng as Vice President in charge of precious metals trading in Shanghai. He started with Gerald on November 1, 2013 and brings 20 years of market experience to the group. Previously with ABN Amro, Fortis Bank, Mitsui and UBS, in his position as head of precious metals trading, he will be responsible for business management and development, expanding upon his already strong foothold in the region in precious and base metals.

Stephen Branton-Speak joins BOCI
Stephen Branton-Speak has joined Bank of China International (BOCI) as an adviser to help expand its commodities business. His initial focus will be on investor products and physical metals.

Keep Calm and Carry On

Editorial Comment by Ruth Crowell, Chief Executive, LBMA

As the LBMA's New Chief Executive, it's an honour for me to speak directly to the market. So much has happened in such a short space of time since I took over the reins at the turn of the year and so much more lies ahead on the horizon. The "normal" LBMA Executive work continues apace. As well as the annual conference which this year will take place in Peru in November we are also organising a Bullion Market Forum in Singapore on the 25 June. We are also taking on more new members and refiners to join the ranks of the Membership and the Good Delivery List. The LBMA committees meet on a regular basis to tackle the ever growing list of issues facing the bullion market. You can read about all of these issues in more detail in LBMA News.

As you will see from the front cover of the *Alchemist* we will be also be launching our new website very soon. This has involved a major overhaul of the design, format and structure of the current site, making it much easier for those accessing the site to find the information that they are looking for. In addition, we have added new features including more imagery and an automatic price feed for the gold, silver and GOFO prices. I am very excited about the new website and I trust that you will find it a major improvement on the current site which has begun to look tired in recent years.

> *"For my first editorial I would like to concentrate on regulation which is affecting all commodity markets and taking up an increasing amount of the Executive's time."*

For my first editorial I would like to concentrate on regulation which is affecting all commodity markets and taking up an increasing amount of the Executive's time. After all, whilst those in the housing market often think in terms of location, location, location, for the commodities markets, its regulation, regulation, regulation.

"My experience has been that businesses can deal with regulation. What they can't deal with is uncertainty." - Benjamin Lawsky, Superintendent, State of New York Department of Financial Services.

While Mr Lawsky's comment was made in relation to the bitcoin market, the sentiment equally applies to the commodities markets. There has been a good deal of uncertainty in the market in recent years following the financial crisis and the subsequent raft of US and EU regulations. Indeed, since the US Dodd Frank Act of 2010 the market has been faced with conflict minerals regulations, OTC derivative regulations, Basel III implementation and most recently IOSCO benchmark regulations.

> *"The London bullion market dealt with the fallout from the financial crisis and it will deal with the regulatory changes that it now faces. It is important however, that a calm, strong response and a long-term perspective are maintained."*

Fortunately, the LBMA had the foresight to respond to this wind of change and defend the interests of the bullion market by setting up the Regulatory Affairs Committee (RAC) in January 2011 to tackle the brunt of the extra regulatory burden. The LBMA has also enjoyed a close working relationship for many years with both the Bank of England and the FSA (now FCA). When gold was included in the US Dodd-Frank legislation, this threatened to destabilise the global gold market. The LBMA responded to this by extending Good Delivery accreditation to cover responsible sourcing, through the creation of the Responsible Gold Guidance. The Guidance provided refiners with a tool to demonstrate not just compliance with regulations on conflict minerals, but other responsible sourcing issues, such as those relating to anti-money laundering. The long-term vision and expanded scope means that the market has not only tackled one threat, but has also put systems in place to adapt to future threats too.

There have been other Dodd-Frank regulations in relation to derivatives as well as recent EU regulations, including EMIR, which have focused on reporting requirements for forward markets. We still await final MIFID definitions although it is not clear at this stage what exactly will be included. The RAC and the LBMA Executive will continue to keep a close eye on regulatory developments and respond to them as and when appropriate.

Of particular interest in the current regulatory climate are commodity benchmarks. And the bullion market like the rest of the commodities market is preparing itself for compliance with IOSCO benchmark principles by the July deadline. For the LBMA, this means ensuring that GOFO and the end of day forward curves are compliant with IOSCO principles. In this respect work continues on preparing a code of conduct to provide guidance both to contributors and to the LBMA Executive on the various aspects of compiling and publishing these benchmarks. In parallel with this work the Gold and Silver Fixing Companies are undertaking a similar review to ensure that the gold and silver fix benchmarks which they administer are also compliant.

This increased regulatory focus has inevitably attracted media attention. Recently, there has been some negative press coverage, such as the recent allegations of manipulation of the London gold fixing price. There is no evidence to suggest that this is the case and on page 14 you can read an article written by Peter Fertig who counters such allegations with a detailed explanation of the price setting procedures.

The London bullion market dealt with the fallout from the financial crisis and it will deal with the regulatory changes that it now faces. It is important however, that a calm, strong response and a long-term perspective are maintained. There are important decisions ahead of the market as we look forward to the challenges facing us in 2014 and beyond. However, I have no doubt that the market will respond to each of the challenges it faces with the same determination and cooperation that it has always done. This evokes the opening lines of *If* by Rudyard Kipling, *"If you can keep your head when all about you are losing theirs and blaming it on you"*. It is important that we keep our heads and trust that the bullion market will continue to thrive as it has done throughout its long history.

Ruth Crowell, *Chief Executive*

Ruth is the Chief Executive of the LBMA with responsibility for the strategic commercial development of the Association, Regulatory Affairs, Intellectual Property, Communications and Events.

She acts as the LBMA's main contact for regulatory affairs related issues and the Association's work on supply chain due diligence, especially with regard to the LBMA's Responsible Gold Guidance. She also represents the Association at industry, governmental and multi-stakeholder regulatory forums. Most recently she served as the co-facilitator of the OECD Interim Governance Group as well as the co-facilitator of the Gold Supplement Drafting Committee.

She has an MSc in History of International Relations from the London School of Economics and a degree in English Literature from Kenyon College in Ohio.

facing facts

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters, GFMS

Gold Mining Costs

During the first nine months of 2013, global total cash costs averaged $768/oz, compared to $740/oz during the same period in 2012, a rise of 4%. Total cash costs averaged $747/oz in 2012, and continued to increase into 2013, reaching a peak of $796/oz in the first quarter. However, results from Q2 and Q3 indicate that this upward trend has faltered, with a slight fall in total cash costs, although much of this is likely attributable to higher output and consequently lower unit costs. This represented a substantial slowing of the cost escalation seen in recent years, reflecting industry-wide attempts to reduce production costs as margins continued to contract due to a combination of rising costs and a falling gold price. Total production costs, which comprise depreciation and amortization in addition to total cash costs, showed a similar trend, reaching $997/oz in the first nine months of 2013, a 5% rise year-on-year. By either metric, a decrease was seen in the second and third quarters (as shown in the chart), although as the gold price has continued to trend downwards, simple cash margins have been squeezed, from a peak of $1,032/oz in the third quarter of 2011 to $591/oz in the same period last year.

At the time of writing, we approach 'reporting season' with many of the producers due to declare results for fourth quarter activities in the coming week. At this time we expect a number of companies to confirm further reductions to unit costs and provide additional information on what is being done to drive further sustained improvements. Across the major gold miners, the corporate message is fairly consistent, with a focus on efficiency, capital discipline, margin preservation and, in some cases, portfolio rationalisation. As a general rule we expect producer guidance to be surpassed in fourth quarter results.

Where we do see potential for further upset is on asset impairments. The average all-in cost, a proprietary GFMS metric that includes ongoing capital costs, indirect costs and corporate costs, is estimated to have averaged approximately $1,350/oz in 2013, a 9% increase on the all-in cost for 2012. We expect much of this increase to result from asset write-downs, reclamation and remediation costs, as producers closed marginal operations. Excluding such factors, we expect the all-in cost to be in the region of $1,200/oz for 2013, but expect this figure has potential to be reined in for the following year. Similarly, projects are being reviewed with growing scrutiny. Advanced projects where the vast majority of capital has already been spent continue to be pushed through to completion. Further upstream though, producers have been taking an increasingly critical view on opportunities that still require significant investments outstanding, with prominent examples of this being the deferral of Barrick's Pascua Lama and Polyus Gold's Natalka projects.

If gold prices continue to slide, which we do expect to be the case as stimulus measures are removed from the western markets, the pressure on producers will clearly become more substantial. However in addition to saving costs in absolute terms, we note that it is possible to drive down unit costs simply by producing more (as the platinum industry attempted albeit with little success in 2010/11). Grade may often be the easiest way to achieve this (although as a practice 'high grading' has in recent years been avoided since it shortens asset life), and will happen at many operations as a corollary of reserve cut-off grades being lifted. Plant recoveries can in many cases be optimised further and in recent months we have spoken to some producers that are carrying out low capital plant improvements that, through improved recoveries, will deliver payback on capital investment within a matter of months. An increase to throughput rates will have a partially beneficial effect through economies of scale and this appears to have started to become a theme in recent quarters.

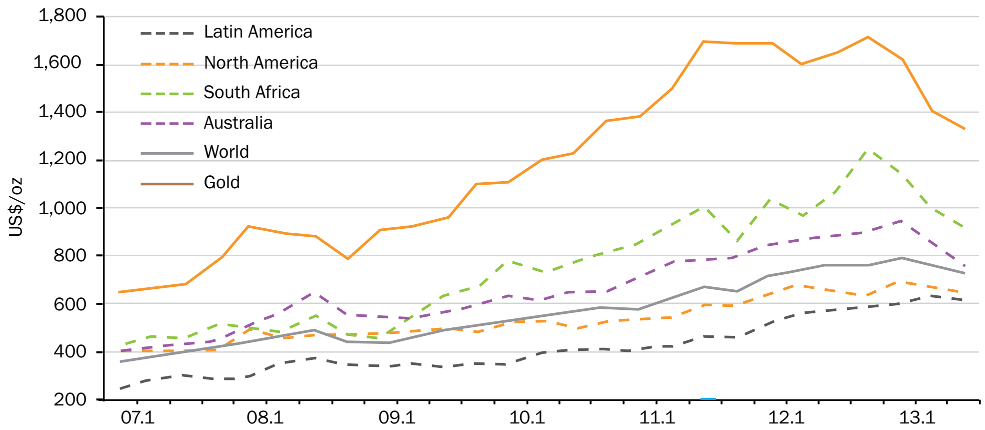
At an Indaba presentation last week in Cape Town AngloGold Ashanti offered good clarity on the efforts being made to rein costs in further. Having last year made substantial reductions at its head office, it detailed that corporate and exploration costs will have more than halved by 2014 versus 2012 with a planned reduction of $460million. Elsewhere, it detailed a targeted $500million a year of sustainable operating savings, with around two-thirds of that to come from the mining, processing and finance functions. The company is far from alone in this planning: all producers are now striving to thrift costs where possible. After ten years of relative largesse throughout the industry, made possible through the gold price rally, we expect improvements to be readily achievable.

In summary, we think that even with some smaller and mature mines likely to close this year (in part owing to lower gold prices), thanks to cost reduction efforts global production is likely to remain resilient at levels similar to 2013's record of around 3,000 tonnes, before the effects of a thinned project pipeline will later take its toll on production volumes. As was the case in the late 1990s, producers will find ways to 'trim the fat' in order to maintain margin.

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS

Having joined GFMS Ltd as a Metals Analyst in 2005 to cover the mining sector, William was brought across to Thomson Reuters in GFMS' 2011 acquisition and holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. He has accountability for the mining team's research output of global production, mining costs and producer hedging research across the precious metals.

Gold Total Cash Costs



Source: Thomson Reuters GFMS

The Alchemist is published quarterly by the LBMA.
For further information please contact Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: alchemist@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

PAMP

Produits Artistiques Metaux Precieux

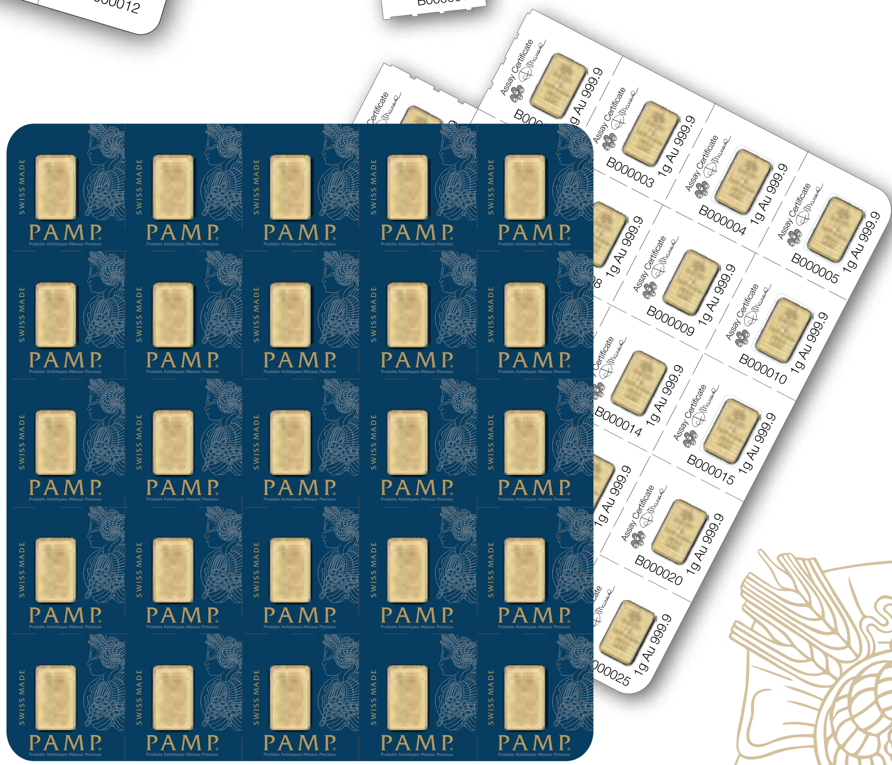
MULTIGRAM+12

For the bullion enthusiast.
Or to gift.

Exceptionally PAMP.

The latest in PAMP innovation has arrived, beginning with the MULTIGRAM+12 and MULTIGRAM+25 bullion sets. Each set's respective quantity of 1-gram Fortuna ingots is packaged within interconnected, securely sealed CertiPAMP units, which may be snapped off from the set while maintaining their unique certification, individual numbering and identity.

MULTIGRAM+25



The Art of Precious Metal Transformation®

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

LBMA

Alchemist

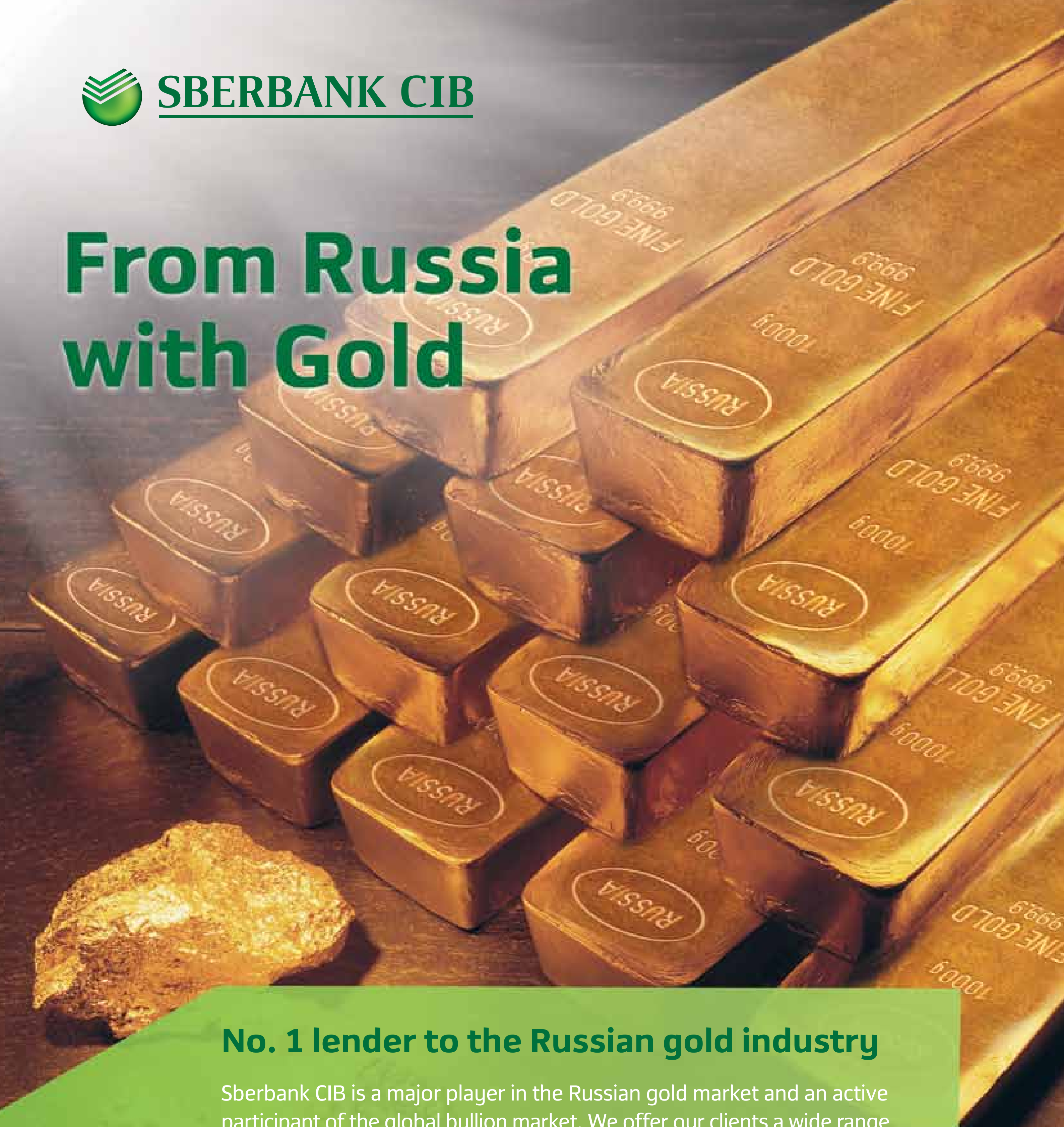
The London Bullion Market Association ISSUE 74 June 2014

In this issue

The photo shows a silver beam balance dating from circa 1850 which was used for weighing silver coin and grain. It is symbolic of the way in which the silver price is determind, by balancing buy and sell orders to establish an equilibrium price. Read more about how the LBMA is assisting the market to find a solution for the London Silver price, in the Editorial on page 30.

SBERBANK CIB

From Russia with Gold



No. 1 lender to the Russian gold industry

Sberbank CIB is a major player in the Russian gold market and an active participant of the global bullion market. We offer our clients a wide range of financial products based on our extensive expertise.

- More than 500,000 clients prefer to keep their precious metals with us
- We distribute more than a third of Russian gold production

Tel.: +7 495 258 05 00   www.sberbank-cib.com

Financial services are provided by CJSC "Sberbank CIB" and also parties contracted by CJSC "Sberbank CIB" | 4 Romanov Pereulok, Moscow, 125009 | Tel: +7 (495) 258-05-00 www.sberbank-cib.com | Sberbank of Russia | General banking licence issued on August 30, 2010. Registration number 1481.

Source: Sberbank CIB evaluation based on sector companies' financial reports; Sberbank CIB calculations based on data from Thomson Reuters GFMS

China's Gold Market: Progress & Prospects

By Alistair Hewitt, Head of Market Intelligence, World Gold Council

The growth of China's gold market has been phenomenal. China went from accounting for 7% of global gold demand in 2003 to 26% in 2013. Jewellery demand more than trebled and, once the prohibition of private ownership of gold bullion was lifted in 2004, investment demand soared. The World Gold Council recently produced a report considering the reasons behind this growth and exploring what the future holds for China. A synopsis of this report is reproduced here by Alistair Hewitt.

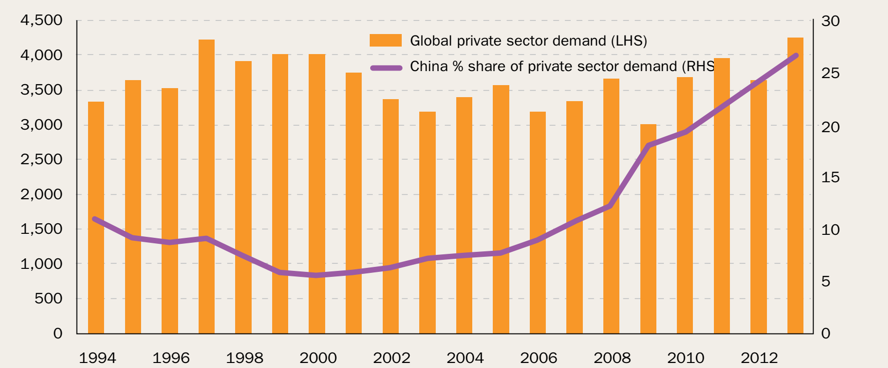


Chart 1: China's share of global private sector demand

Source: Thomson Reuters GFMS, Precious Metals Insights, World Gold Council

In 2013, China accounted for 26% of global private sector gold demand (see chart 1).[1] Taking advantage of lower prices, the country's consumers and investors increased their purchases of jewellery and bullion by a combined 259 tonnes (t). Today, China is both the world's largest jewellery and physical bullion investment market and a key area of focus for many gold market analysts and commentators.

China's gold market is unique, can be difficult to understand and is currently set against an economy that may falter. With this in mind, we felt the time was right for a detailed analysis of China's gold market to understand how it has achieved its staggering growth and what the future holds. The result was *China's gold market: progress & prospects*, a detailed analysis of the factors driving Chinese gold demand, produced in conjunction with Philip Klapwijk, founder of Hong Kong-based *Precious Metals Insights*.

By 2017, we expect Chinese private sector gold demand to have increased to at least 1,350t from its current level of 1,132t. Because of the risks around China's growth outlook as it moves from an investment-led to a consumer-driven economy and the potential for a financial shock bubbling away, we felt it prudent to assume a conservative level of growth over the forecast horizon of 6% per annum. If the economy performs better than anticipated, then we would expect to see stronger growth in gold demand. This growth in gold demand is underpinned by three powerful forces:

Culture: China has a strong cultural affinity with gold, which is often overlooked. Gold gifts are intertwined with many significant social occasions. Golden soup bowls and chopsticks are often given to newborn children, golden figurines are given to family members and loved ones around Chinese New Year, and more recently the Chinese jewellery trade has established Valentine's Day as an important event in its calendar, joining Mother's Day as an occasion for giving gold jewellery. In addition, gold is regarded as a form of money. Indeed, the character for gold in Mandarin 金 *(zu jin)* is also a synonym for money.

Wealth: China's wealth has grown considerably over recent years. Between 2010 and 2013, GDP per capita at current prices grew 52% to US$6,747, and by 2017, it is expected to grow 27% to US$9,300.[2] In a detailed analysis of Chinese consumer demand, McKinsey has forecast that by 2020 China's middle class will have grown from 300 million to 500 million. To put this in context, the entire US population was 316 million in 2013. China has a huge population whose wealth is rising. This will support demand for a broad swathe of goods and asset classes, including gold.

Government support: China's gold market could not have developed the way it has without government support. The authorities created key institutions, including the Shanghai Gold Exchange (SGE), which have supported the orderly growth of the market. It also removed barriers to purchase gold, for example, by allowing private ownership of gold bullion in 2004. More recent developments, such as increasing the number of banks that have gold import licences and the SGE's proposal to launch an 'international board' in the Shanghai Free Trade Zone, will spur on the development and growth of China's gold market.

Gold Market Development

In 1949, the victorious Communist Party inherited a country that had been ravaged by an eight-year liberation war against the Japanese invaders as well as the Civil War between the Communists and the Kuomintang. There was a pressing need to stabilise the economy and tackle the hyperinflation that had plagued China for much of the previous decade. A central plank of the new leadership's economic policy was the introduction of a new currency. During the Civil War, a number of different currencies circulated

1 Jewellery consumption, investment (in physical bars and coins) and other fabrication demand (namely, for electronics and other industrial applications). Excludes producer de-hedging.

2 IMF WEO

in the country and it was imperative that this new national currency should be the only means of exchange and a store of value. Hyperinflation had eroded the role of local currencies to such an extent that most trade was conducted via barter or using gold and silver. Gold and silver, together with foreign currencies, were both the medium for measuring prices and the principal means of preserving financial wealth. To improve the chances of currency reform, it was necessary to remove this competition. The government therefore began to restrict activity in precious metals and foreign currencies, leading in 1950 to an outright ban on the private use of gold, silver and foreign monies. Similarly, all import and export of gold and silver by private persons was forbidden. All precious metals activity would be controlled by the state via the People's Bank of China (PBoC).

Likewise, all imports of bullion would have to be made through it. The SGE started trading in October 2002. Further liberalisation occurred in 2003, when the licensing system for running businesses in gold and silver products was abolished, and in 2004, when for the first time since 1950, private persons were permitted to own and trade bullion.

More recently, there has been a flurry of activity designed to liberalise the market. In 2008, foreign banks became members of the SGE (HSBC, ScotiaMocatta, ANZ, UBS and Standard Chartered Bank) and the first gold futures contract was traded on the Shanghai Futures Exchange. In 2012, OTC interbank trading was permitted between banks and cleared through the SGE. And in 2013, two foreign banks – ANZ and HSBC – were granted licences to import gold for the first time. Looking ahead, the SGE has announced plans to launch an 'international board', or trading platform, in the newly established Shanghai Free Trade Zone. This will provide a platform for overseas investors to trade its products directly and for the launch of new products. In the long run, the SGE plans to integrate this with its main trading system, yet another step in the liberalisation of the gold market.

People's Bank of China

Following China's emergence from the Cultural Revolution, the initial phase of economic reform saw only a very cautious market opening, mainly characterised by growth in jewellery manufacturing capacity, especially in the Shenzhen Special Economic Zone. Indeed, the PBoC's central role in the Chinese gold and silver markets was validated by the 1983 'Regulations on the Administration of Gold and Silver', which stated that the central bank was responsible for the regulation, supervision and control of the purchase and distribution of gold and silver in China. The PBoC was also explicitly tasked with managing the country's gold bullion reserves.

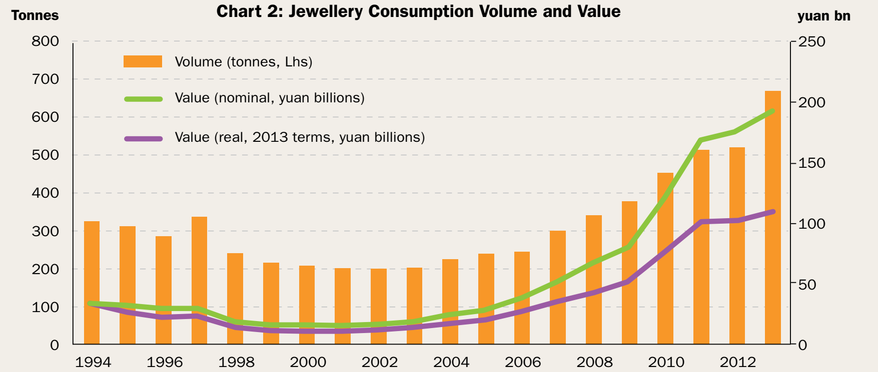
During the 1990s, the PBoC gradually adapted its management of the market to make it more efficient. This was especially noticeable in terms of an increased supply of metal to local fabricators and the move to a more market-based gold pricing system. However, it was only in 2001 that the state signalled the ending of the PBoC's control on the setting of domestic prices, the purchasing of mined gold and scrap, and the selling of refined gold to manufacturers.[3] Instead, prices would be determined via the soon-to-be-established SGE, of which the PBoC would be the founder and the key stakeholder. All refined gold would have to be sold on the Exchange and it would also be the only market for the purchase of gold by industry and financial institutions.[4]

Jewellery Demand

Jewellery forms the bedrock of gold demand in China. In 2013, at 669t, jewellery accounted for close to 60% of all private sector gold demand (see chart 2). Its growth has been supported by rising incomes and the newly emerging middle class. Looking forward, there are threats to gold jewellery demand, but we expect it to continue to grow and reach at least 780t by 2017.

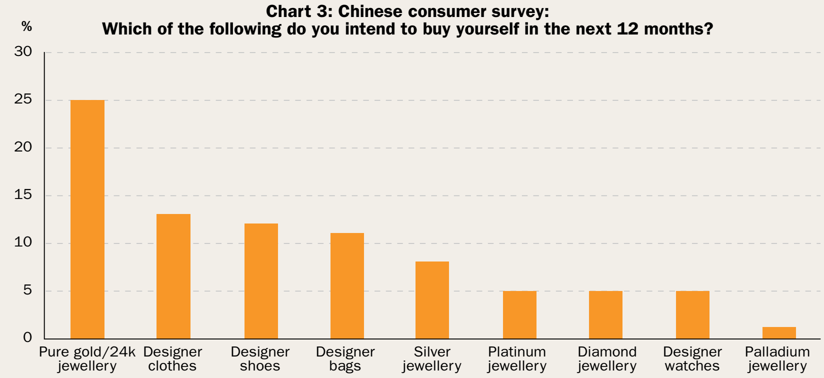
The Chinese market is dominated by plain, 24-carat products, which Precious Metals Insights estimates represents about 85% of the market by volume. This market share increased in 2013 as the jewellery component of last year's surge in demand was entirely based on 24-carat items. This 'pure gold' jewellery (known as *zu jin* in Putonhua/Mandarin and *chuk kam* in Cantonese) is almost entirely sold by weight. Shops weigh the items chosen by their customers, multiply the fine weight in grammes by the daily SGE spot price and then add a mark-up that incorporates the labour charge and a retail margin.

Chart 2: Jewellery Consumption Volume and Value



Source: Thomson Reuters GFMS Shanghai Gold Exchange, Precious Metals Insights, World Gold Council

Chart 3: Chinese consumer survey:
Which of the following do you intend to buy yourself in the next 12 months?



Source: World Gold Council

3 In 2000, the World Gold Council and the PBoC jointly commissioned the Development Research Centre of the State Council to review how the Chinese gold market should develop.

4 Only SGE-recognised or LBMA-accredited refineries are allowed to trade on the SGE. It is compulsory that their entire output is sold to the Exchange. Gold traded on the Exchange is VAT free. Gold traded OTC and not on the Exchange is subject to VAT of 17%.

> *"Gold's place at the heart of traditional Chinese weddings is an important manifestation of its cultural importance."*

The competition for 24-carat jewellery from platinum, silver or costume jewellery is very limited and looks set to remain that way, for at least the medium term. 'Pure gold' jewellery has a very well defended position because it is the only jewellery on sale that is also considered to be a form of investment. In the long run, some younger consumers may be more tempted by K-gold, other 'white metal' jewellery or gem set pieces. However, a comprehensive World Gold Council usage and attitudes study in 2011 indicated that while younger consumers are more open to experimenting with different kinds of jewellery, 'pure gold' products easily remain the most favoured category (see chart 3).

Social Occasions

Gold's place at the heart of traditional Chinese weddings is an important manifestation of its cultural importance. It is estimated that close to 40% of Chinese 24-carat jewellery consumption is related to weddings.[5] In the third and fourth-tier cities, this percentage is higher. The growth in the number of people of marriageable age together with increasing wealth has boosted sales of jewellery for traditional wedding sets and rings. Typically, a three-piece wedding set, known in Mandarin Chinese as *jiehun san jing*, might consist of a necklace/pendant/bracelet, ring and earring combination. Bracelets are especially popular in southern China where wedding sets often comprise five rather than three pieces. The number of marriages, according to the mainland's official data for China has increased by 60% since the middle of the last decade to 13.2 million at the end of 2012.[6] This has undoubtedly made an important contribution to growth in demand for 24-carat gold (see chart 4). As China's demographics change, the number of weddings may fall, but we do not expect this to happen until the 2020s. Over our forecast horizon, we expect the number of weddings to be broadly stable, with rising wealth to support higher expenditure on gold jewellery.

Consumers' Views

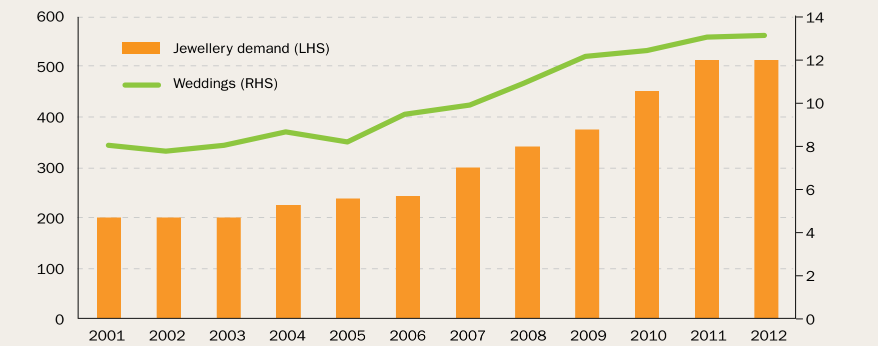
A consumer survey of 1,000 people conducted towards the end of 2013 illustrates how China's population continues to view 'pure gold' jewellery as a form of money, with little indication that this traditional attitude will change any time soon. Asked whether they agreed with the statement that 24-carat gold jewellery "…is as much an investment as it is a fashion item", no less than 80% of the sample agreed, while only 4% disagreed (16% held no view either way). Moreover, support for future demand is strong: in a separate survey of more than 10,000 Chinese consumers throughout 2013, 76% of those aged between 18 and 27 also ascribed investment status to 'pure gold' jewellery. And the majority of respondents planned to maintain or increase their spending on 24-carat gold jewellery over the next 12 months by 44% and 35% respectively (see chart 5). For those planning to increase their spending, the principal motives were that they expect 24-carat jewellery to hold its value over the long term and they anticipate higher levels of disposable income.

Investment Demand

Since investment in bullion was permitted in 2004, demand for bars and coins has soared from a mere 10t to 397t in 2013. This phenomenal increase is connected to the relatively limited set of investment options for savers in China and investors' faith in gold as a safe and easy-to-access asset. It is also a reflection of investors' desire to diversify assets away from an overreliance on volatile equities, illiquid property and bank deposits that pay negative real rates of interest and that held US$7.5 trillion of households' savings in June 2013. We judge that medium-term prospects are very positive and demand could reach close to 500t by 2017.

In 2004, the PBoC authorised the purchase and sale of gold in bullion form among private persons for the first time since 1950. In the decade since this historic decision, China has become the world's largest market for gold bullion. In 2013, an estimated 397t of bars and coins bought by local investors accounted for around 23% of global physical investment demand (see chart 6).

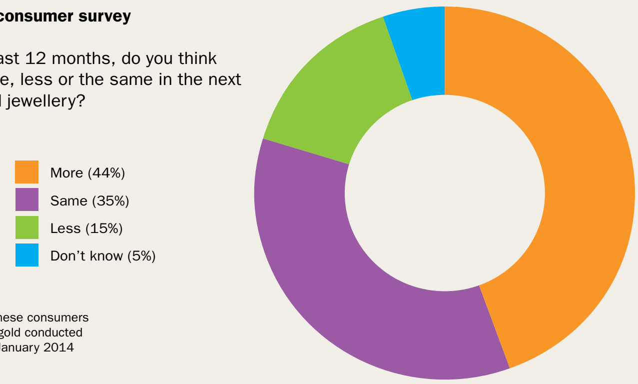
Chart 4: Number of weddings and gold jewellery demand in China



Source: Ministry of Civil Affairs, Thomson Reuters GFMS

Chart 5: Chinese consumer survey

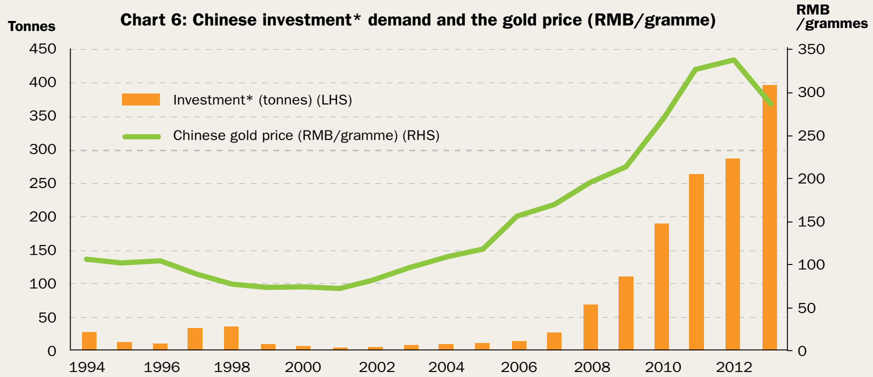
Compared to the last 12 months, do you think you will spend more, less or the same in the next 12 months on gold jewellery?



Note: Survey of 1,001 Chinese consumers and their attitude towards gold conducted by the World Gold Council January 2014

Source: World Gold Council

Chart 6: Chinese investment* demand and the gold price (RMB/gramme)



Source: Thomson Reuters GFMS, Shanghai Gold Exchange, World Gold Council

**Investment includes total bar and coin demand*

5 Precious Metals Insights; World Gold Council; trade sources.
6 Ministry of Civil Affairs.
7 PBOC

Investors' Views

Latent demand for gold bullion existed in China well before the market was opened in 2004. This is apparent from the level of bar demand in the 1990s, which in certain years reached quite significant numbers in spite of the government's prohibition of such activity. It should also be restated that 'pure gold' jewellery during this period was, for many local investors desperate for an inflation hedge, the best available proxy for bullion.

In fact, the use of gold as a hedge against inflation is a major factor behind the growth in domestic investment demand seen since 2004. In China, there is to some extent a German-style popular memory of past hyperinflation that continues to influence attitudes and behaviour today. The reference here is to the hyperinflation that occurred in the 1937-49 period during the Second Sino-Japanese War and the final stage of the subsequent Chinese Civil War. China again saw high levels of inflation from late 1992 to early 1996, with official figures showing an annual average peak of 24% in 1994.[8]

When faced with the array of investment opportunities, gold is often investors' preferred option. Many investors are disillusioned with the stock market. Following outstanding returns in 2006 and 2007, the Shanghai Composite Stock Index dropped by a huge 65% during 2008, and although it rebounded in 2009, the trend since then has been disappointing.[9] Besides this, many potential private investors feel that the stock market is too easily manipulated and that losses have been disproportionately heavy for those who are not 'insiders'. Similarly, many view property as overvalued and illiquid. Gold, in contrast, is an internationally traded commodity, easy to buy and sell, and the majority of Chinese investors are bullish on the gold price. In a survey of 1,000 people in December 2013, 60% of respondents expected the price of gold to increase over the next 12 months.

Supply Side Developments

Data show that investment demand in China was initially quite modest following market liberalisation. It took some time before products were developed and networks established by local refiners and banks to take advantage of the new regime. In fact, it was not until late 2005 that the Industrial and Commercial Bank of China (ICBC) and the SGE launched the first spot-trading product for private investors, known as *jihangjia*. In December 2006, the China National Gold Group (CNGG) launched the first gold investment bar traded in line with prices on the SGE, with a guaranteed buy-back. (Even today, the buying back of bars is limited in terms of the outlets or bank branches offering this service, although the number is growing.) At the same time, a range of bars had started to appear in jewellery stores, the majority of which were aimed at the gift market and were therefore sold at relatively high mark-ups. It took a while for a genuine investment bar market to develop and, in this regard, the major banks, especially ICBC, played a critical part in developing the necessary infrastructure through their branch networks and in promoting branded investment bars of various sizes to their customers.

CaiBai Jewellery Store, Beijing

The commitment of the banks was also a necessary condition for Gold Accumulation Plans (GAPs) to be successfully developed in China. In December 2010, ICBC, with the support of the World Gold Council, launched the first GAP, which was aimed at ordinary savers who were interested in regularly accumulating a certain amount of gold at the bank, with the option of eventually taking delivery of the precious metal in bar form. ICBC's GAP has proved very popular and the bank continues to roll it out to more of its 17,125 branches across the country. Four other banks have since launched similar GAPs, as have some large jewellery retailers, such as Beijing's famous CaiBai store.

Sophisticated institutional investment products have also been launched. In June 2013, the China Securities Regulatory Commission gave permission for two Shanghai-based asset management companies, HuaAn and GuoTai, to launch domestic gold ETF products. Much time had been spent on designing a gold ETF that would appeal to investors while respecting financial legislation that forbade the direct linking of securities to physical commodities. The solution was to link the ETFs to spot gold contracts traded on the SGE rather than directly to bullion sitting in a vault. On 18 July 2013, the HuaAn and GuoTai gold ETFs were launched on the Shanghai Stock Exchange, with China Construction Bank and ICBC the custodian banks responsible for backing the products with spot metal. The ETFs' shares are quoted in yuan and each share represents 1/100th of a gramme of gold. For both funds, the minimum investment is 300,000 shares (equivalent to 3kg) and the maximum annual management fee is 50 basis points. At the end of 2013, the size of the HuaAn fund was 2.4t and the GuoTai fund 0.4t. In both cases, the size of the fund had declined since inception. More recently, in December 2013, a Shenzhen-based asset management company called E-Fund launched an ETF. This nascent market has not flourished in the same way that the physical market has, although most market participants believe this will change. As China's institutional investment market matures, many expect its appetite for ETFs, including gold-backed ETFs, to grow.

Conclusion

The growth and development of China's gold market has been incredible and, in some respects, mirrors that of its wider economy. It has gone from being a minnow on the world stage to taking an increasingly important role and becoming a key source of global demand. The foundations on which China's gold market has been built are solid: China's deep-rooted cultural affinity with gold, increasing levels of wealth and continued government support are robust pillars that will ensure that China's gold demand is sustainable and ongoing.

Alistair Hewitt manages the World Gold Council's Market Intelligence programme. The Market Intelligence team is responsible for producing insightful research on the gold market, including its quarterly flagship publication, *Gold Demand Trends*. Alistair joined the World Gold Council from the Bank of England where he managed its Market Intelligence activities and, before that, was the Bank's Deputy Agent for the North East of England.

8 National Bureau of Statistics.
9 National Bureau of Statistics.

Because you need precious metals solutions, we offer trusted global insight and expertise

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery services
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 207 444 9075
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

This communication is issued by Commerzbank. Commerzbank AG, London Branch is authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request. Copyright © Commerzbank AG 2014.

COMMERZBANK
The bank at your side

The Importance of Silver Standards in Archaeology: Ancient Silver Coinage 500-100 BC

By Dr Thomas Birch and Prof. Dr Fleur Kemmers, Goethe University, Frankfurt am Main

A Spartan silver Didrachm (7.85 g) dating to circa 380-340 BC from the Greek colony Taras, which became the ancient Roman city of Tarentum in Apulia (southern Italy). Scale in centimetres.

Using certified silver standards produced by the LBMA, researchers at the Goethe University have undertaken analysis of the composition of silver coin dating back to 500 BC in order to understand the origins of the silver bullion used to mint the coinage and also the changes caused by key historical events over the last 2,000 years or more.

A comprehensive investigation of ancient silver coinage is underway at the Goethe University in Frankfurt. As part of the interdisciplinary research, some 200 silver coins from across the Western Mediterranean are being analysed for their chemical composition and lead isotope signatures. The aim is to discover the origins of the silver bullion used to mint these coins and to monitor the continuity or changes caused by key historical developments during the period 500-100 BC. One of the main hurdles encountered, however, was finding appropriate silver reference materials for the purpose of analysis and to assess the reliability of the results. Only very recently were two certified silver standards produced by the LBMA that can be used in archaeological science. These standards play a key role in our research project.

Coinage and the dynamics of power

The research project, called 'Coinage and the dynamics of power: the Western Mediterranean 500-100 BC', is funded under the Lichtenberg scheme by the Volkswagen foundation. It is based at the Goethe University, Frankfurt am Main (Germany) and involves two PhD projects, two post-doctoral projects and a principal investigator.

In 500 BC, some Greek cities in the Western Mediterranean had just started to mint coins, mainly of silver, with widely varying weights, sizes and designs. By 100 BC, the entire West Mediterranean had been incorporated into the unified currency system of the Roman Empire, for which coins were issued on a fixed standard. These coins circulated widely and were used in everyday transactions.

The project focuses on the intervening process. Based on an interdisciplinary approach, the aim is to find out how coinage was adapted and used by the various peoples inhabiting the Western Mediterranean. The working theory is that the ability to mint coins, and to use them for various purposes, was greatly influenced by the constantly changing balance of power in the area. In the struggle over hegemony in the region, coinage was an important instrument to finance the various bids for power, to display developing identities and shifting loyalties, and to facilitate control over subjugated areas.

There is a close relationship between the production of coins and the control over resources – there are no coins without metals. Access to resources was continuously changing throughout the period under discussion. Mining was obviously an important source for metal, yet metal could also be obtained by melting down other objects or foreign coins that could be gained through trade networks or as booty or tribute. In order to understand how coinage affected the discourse of power in the Western Mediterranean and vice versa, the project aims to trace the sources available to the different peoples in the area and how this changed over time.

The variation in the composition and isotopic signature of the coins can be related to that of geological sources, namely ore deposits. This information can be used to establish, or refute, an ore source (provenance) for the silver metal used to mint the coins. To this end, we are sampling and analysing a comprehensive and representative selection of silver coins issued between c. 500 and 100 BC in the Western Mediterranean. This is an entirely new approach.

> *"There is a close relationship between the production of coins and the control over resources – there are no coins without metals."*

Figure 1: A Bronze Aes (coin denomination) being sampled from the Poseidonia mint, a Greek colony in southern Italy (circa 350-290 BC)

To drill or not to drill?

Destructive analysis of some of the first coinages is a sensitive issue, where conservation has to be reconciled with scientific value and perceived improvements in scientific practice. The 200 silver coins selected for analysis in this study are to be spread across multiple universities and museums to avoid overburdening any single collection. The project has just recently completed the sampling and analysis of the first 40 coins, all from the Tübingen University collection. Three drillings are made into the rim of each coin, using a 0.5-0.8 mm diameter drill-bit and a hand-held rotary tool, collecting the turnings (around 30 mg or more) for analysis (though omitting the initial surface). The analysis of the unadulterated 'heart' metal is preferred, as the surface of the coin can be corroded and artificially enriched in some elements. Surface analysis techniques may be non-destructive (or micro-destructive) but are not necessarily representative of the whole coin composition – results can be misleading.

"Thanks to a great body of work built up by previous scholars, there is an extensive collection of lead isotope analyses of metal-bearing ores across Europe and in the Mediterranean especially (for example, in Greece, the Aegean Islands, Italy and Spain)."

Lead isotope provenancing

A small portion of the collected turnings are dissolved in acids and prepared for lead isotope analysis, a technique used to determine the origins of a metal. The ratios between different lead isotopes help identify particular geological regions. This allows for a lead isotope signature of a coin to be matched to a geological source (provenancing). Lead isotope provenancing relies on having a reference collection of known signatures. Thanks to a great body of work built up by previous scholars, there is an extensive collection of lead isotope analyses of metal-bearing ores across Europe and in the Mediterranean especially (for example, in Greece, the Aegean Islands, Italy and Spain). A few islands and regions within the Mediterranean, however, have overlapping lead isotope compositions that cannot easily be distinguished from one another. Fortunately, the composition of the silver itself, namely the trace elements, can be used to help separate these isotopically similar deposits. One problem with lead isotope provenancing is the issue of mixing that results from the recycling of coins for new issues, or from melting differently sourced bullion. In these cases, no single source can be found because it does not exist; however, multiple samples may infer the different sources that were used.

The chemical composition of silver

The remainder of each sample is placed in epoxy resin and flatly polished as a metallographic block, a common form of sample preparation in materials science. This allows each sample to be examined under a microscope, or even to be subjected to further analysis by various beam techniques. Our project utilises two complementary beam techniques to determine the full chemical composition of each coin. The first beam technique (electron probe microanalyser) is a routine method for determining the bulk composition of the coin in terms of atomic weight percent. This makes it possible to determine the purity of the silver (i.e. 99.84 %), as well as quantify any other minor (or alloying) elements, such as copper or lead. The bulk composition alone may be sufficient in identifying debased coinage, perhaps relating to times of economic stress.

The second analytical technique (laser ablation inductively coupled plasma mass spectrometry) is then used to accurately quantify the trace element composition of the metal (everything amounting to less than 0.1%). The first technique is capable of detecting down to 100 parts per million (0.01%), whereas the second technique can detect much smaller amounts, for example, less than 1 part per million (0.0001%). For those coins with indistinct lead isotope signatures that relate to more than one ore deposit, the trace element composition can be exceptionally useful in further refining the provenance of a coin to one source in particular. The trace element composition can also help characterise coinage produced from recycled metal, providing a chemical 'identity' for that group, even though it may be impossible to provenance the group accurately.

Certified reference materials

In order to obtain reliable results from analytical instruments, it is necessary to use control materials, often referred to as 'standards'. These are used to calibrate analytical instruments, as well as test their precision and accuracy. By analysing a standard, it is possible to see how the actual results of an instrument compare to the 'real' values reported for the standard, giving a measure of the instrument's accuracy. The ability of the instrument to repeat such accurate measurements provides an indication of its precision. The accuracy and precision tests, therefore, help provide a measure of the quality and reliability of the results being produced. The process of accuracy and precision testing, however, depends heavily on the reliability of the standards being used in the first place.

Standards come in two forms. A 'reference material' (RM) is often produced and analysed by a single organisation, which may or may not be an accredited National Calibration Laboratory. A 'certified reference material' (CRM) is one that has been analysed by multiple independent accredited laboratories (usually six or more) and issued with a peer reviewed certificate of the composition. The degree of confidence, or certainty, of the composition directly relates to the number of independent analyses, which is why CRMs are preferred, even though they are less abundant than RMs.

Finding appropriate silver standards containing trace elements has long been a challenge for archaeological science. Although there are RMs available, the production of CRMs was only recently met by the LBMA, which produced two silver standards (AgRM1 and AgRM2). These two pure silver standards (99.95%) contain a comprehensive set of 21 trace elements (mostly transition metals). The confidence of the certified values is impressive, with an overall average (median) error of around 10% in trace elements (often less than 50 parts per million) for each silver standard.

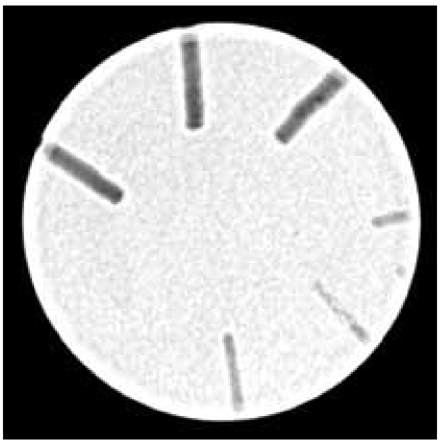


Figure 2: An X-radiograph of a Euro cent coin after test drilling showing the variation in hole sizes made using different drill bits (0.5-0.8mm diameter). The diameter of a Euro cent is 16.25 mm, and the thickness 1.67 mm.

Comparability of results

One of the principle aims of our analytical research is to make the results comparable with future datasets. Aside from preserving the integrity of the data, the aim is to minimise further sampling of the same coins in future studies. The use of the LBMA standards for the analysis of silver coins promotes the comparability of datasets produced by different research institutions (using the same standards), so that errors can be quantified and directly compared. This is a pertinent issue for coin studies, where thousands of coin compositions have been published, though many of the datasets are largely incomparable. This is not solely due to the adoption of different analytical techniques, but due to the use of different RMs.

The future of coin studies and reference materials

In recent years, a huge effort has been made to produce and promote RMs that can be useful for researching materials in archaeology and aiding the comparison of datasets. Many RMs and CRMs exist for various copper alloys (as well as pure copper) containing trace elements, but silver alloys are an outstanding issue. The LBMA CRMs are essential and set a benchmark in quality, as well as being a practical asset to archaeological research. There are coin series, however, that are not pure silver, which have been deliberately debased for reasons owing to the socio-political and economic climate. Antique counterfeits were also made using silver alloys (with concealed cores). To remedy the absence of silver-copper alloy standards, six research institutions (led by the Goethe University) have commissioned a new set of silver alloy standards that will be used to study silver coins primarily debased with copper (and also containing appreciable amounts of lead and gold). The co-operation between universities and museums engaged in archaeological research has been paramount to establishing the manufacture of relevant standards. The efforts made by the LBMA to produce a set of silver CRMs have been appreciated not only by the metal industry, but by archaeologists. It is hoped that such efforts will stimulate further preparation of more silver-based RMs to be used in archaeological research for studying ancient silver artefacts and coins.

Dr Thomas Birch
Thomas Birch is a postdoctoral researcher at the Goethe University, Frankfurt am Main.
Having received his MSc in the Technology and Analysis of Archaeological Materials from the Institute of Archaeology (University College London), he went on to specialise in iron provenancing of weaponry from Iron Age Scandinavia (University of Aberdeen). Upon finishing his doctoral degree he accepted a postdoctoral position at the Goethe University in 2013, where he is the principle archaeometric investigator researching the provenance of bullion for antique coinage.

Prof. Dr Fleur Kemmers
Fleur Kemmers is Lichtenberg-professor for Coinage and Money in the Graeco-Roman World at the Goethe University, Frankfurt am Main.
Having received her MA in European Archaeology from the University of Amsterdam, she specialised in numismatics during her PhD research on roman coin finds from a major roman legionary fortress in the Netherlands at the Radboud University Nijmegen. Upon finishing her doctoral degree in 2005 she continued as postdoctoral research at the same university, simultaneously running her own archaeological consultancy business. In 2010 she was granted the Lichtenberg-professorship in Frankfurt am Main.

More information can be found on the project webpage at: www2.uni-frankfurt.de/47219502/muenzen_dynamik_macht

Forthcoming LBMA Member Events in 2014

In addition to the Singapore Forum in June (see separate 2 page insert) and the annual Conference in Lima in November (see advert on page 21), members of the LBMA may wish to mark in their diaries the following events during 2014.

Annual General Meeting
Glaziers Hall – 11 July 2014

The LBMA's AGM will take place at 16:30 at Glaziers Hall, 9 Montague Close, London Bridge, London, SE1 9DD.

This will be followed by an informal drinks reception at 17:30. See LBMA News on page 28 for further details.

LPPM/LBMA Cocktail Reception
New York – 18 September 2014

The LPPM, together with the LBMA, will be holding a joint Cocktail Reception for their members and invited guests on Thursday 18 September 2014 from 17:30 to 20:00, in the Villard Ballroom, New York Palace Hotel.

Any members wishing to receive an invitation please contact admin@lppm.com

LBMA Biennial Dinner
Guildhall – 1 December 2014

The LBMA's biennial dinner will be held this year at the Guildhall, Gresham Street, PO Box 270, London, EC2V 7HH.

There will be a Cocktail Reception at 18.30 followed by dinner at 19.30.
As usual, this will be a black tie event, and is open to Members, Associates and their guests.

Salvage of the Century, HMS Edinburgh and Her Cargo of Gold

By Dr Michele Blagg, Research Associate at the Institute of Contemporary British History (ICBH)

© IWM (A 6160) Aerial view of HMS EDINBURGH, 'Southampton' class (third group) cruiser in Scapa Flow, October 1941

News of the record-breaking salvage recovery of silver bars aboard SS *Gairsoppa*, sunk off the Irish coast in 1941, brought to mind the 1981 salvage operation of HMS *Edinburgh*. Dr Michele Blagg has delved into various historical archives to bring the fascinating story of HMS *Edinburgh* to life.

Sunk by a German U-boat in 1942, HMS *Edinburgh*, together with 58 of her crew and 465 gold bars intended as payment from Russia to America for war equipment, lay undetected 200 miles off Murmansk, 800 feet below the surface of the Barents Sea. Her precious cargo, which was stowed in the bomb room, had an estimated value at the time of £1.5 million (£142 million today). In 1981, when a salvage consortium successfully located the wreck, 431 of the bars, with a value of £45 million, were recovered. Hailed by the press as the 'salvage of the century', over time, this sensational story faded from popular memory, only to be revived recently following a visit by Her Majesty the Queen and Prince Philip, Duke of Edinburgh, to the Bank of England. The Royal guests were shown a collection of special-interest gold bars, one of which was a bar recovered from HMS *Edinburgh (Alchemist, 70).*

My own fascination with this extraordinary story of the *Edinburgh* began with a chance encounter with a retired gold dealer who had acted on behalf of the successful salvage consortium in disposing of its share of the gold. Keith Jessop, director of Jessop Marine Recoveries Ltd. (JMR), through his meticulous research and sheer determination was the driving force behind the recovery operation. JMR was a small operation and unable to raise the necessary capital to undertake such a risky venture. However, it recognised that its best chance of winning the contract was to put together a consortium of specialist firms from the salvage and diving industry. JMR was joined by the successful British diving company, Wharton & Williams, known as 2W for short. With no diving vessels of its own, 2W approached Offshore Services Association (OSA), a German company with a fleet of around 100 vessels, which came on board as a subcontractor. The final member was Racal-Decca, an experienced marine survey company. Each member of the consortium had its own specialist area of expertise. In bringing their skills together, the consortium was able to utilise the embryonic techniques pioneered in the exploration for North Sea Oil. The technological advances increased marine survey and diving capabilities and therefore the chance of recovery, allowing the salvors to attempt a very risky operation. From the outset, the consortium bore all the financial risks. There was no guarantee that the wreck could be located, or that the precious cargo would be intact or even still aboard. And then there was the question of whether the unfathomable depths would be safe for divers to explore.[1]

Stalin's Gold

The ownership of the gold was never in dispute. The cargo of gold aboard the *Edinburgh* was covered under the 1942 War Risks Insurance contract signed by the wartime Soviet Trade Delegation to London. The Russian share was £0.5 million. In addition, a further £0.5 million in insurance was taken out in the event that the vessel was lost at sea. The British Department of Trade's exposure also stood at £0.5 million. The bullion cargo, part of a deal between the Russian government and the United States Treasury, was a down payment on thousands of tons of war equipment. On 28 April 1942, the *Edinburgh* began her journey westwards from Murmansk to the United States through 2,000 miles of Arctic Ocean, along a notorious route commonly referred to as the 'Gateway to Hell'.[2] Her departure did not go unnoticed. After only a day at sea, enemy reconnaissance planes detected her, and German U-boats and destroyers were dispatched to launch an attack. She was crippled soon after being torpedoed twice by U456, which wrecked her steering equipment (see figure 1 below). Placed under tow, the *Edinburgh* made slow progress as she attempted to make a safe return to port. On 1 May, she came under further attack, and this time the signal to 'abandon ship' was given and minesweepers went alongside her to save the wounded passengers and crew. Lines were let down and she was sunk by her own support vessels once it became clear that towing her was no longer possible in prevailing weather conditions.[3]

> *"In 1981, when a salvage consortium successfully located the wreck, 431 of the bars, with a value of £45 million, were recovered."*

© IWM (MH 23866)
Figure 1: A photograph clearly showing the severe damage to the stern of HMS EDINBURGH caused by a German torpedo whilst travelling with convoy QP11. The damage was so great that HMS EDINBURGH had to be sunk by a torpedo of the British destroyer HMS FORESIGHT.

1 Keith Jessop, *Goldfinder, The True Story of One Man's Discovery of the Ocean's Richest Secrets* (London, Simon & Schuster, 1998), p.333.

2 Frank Pearce, *Last Call for HMS Edinburgh, a Story of the Russian Convoys* (London, Pan Books), p.54-5.

3 The National Archives, Kew (hereafter TNA), ADM 358/3246, Official Admiralty No.656., 7 May 1942.

In 1954, Lord Jellicoe of Jutland, during his time at the Foreign Office's Northern department, was in charge of the Soviet Desk. Despite the added complication of post-1945 international relations, Jellicoe approached the Soviet Union via its Ambassador to London, Mr Ippolitov, with a view to initiating a joint salvage operation for the *Edinburgh* cargo. Having made several written attempts to make contact, Jellicoe finally spoke directly to Ippolitov. His notes reveal some of the frustrations he felt at the apparent lack of Soviet interest in launching a recovery, recalling that

> *"it was now high time that we dealt with this purely practical sort of question in a normal businesslike manner. Ippolitov looked a little shamefaced and said that he thought we would very shortly be receiving a definitive reply from the Soviet Government".*[4]

In fact, it was over a year before the matter was to be formally discussed during a visit to London in December 1955 by the Soviet delegates from the Ministry of Foreign Affairs.[5]

In the interim period, the British government had already considered its own position in launching a salvage operation. Various departments were approached and feedback recorded. The Admiralty, for its part, had no objection to a contract being awarded to a salvor to operate on the wreck, provided that steps were taken to ensure that any safes, Admiralty documents or other valuables recovered were handed over to it. The Treasury expressed some concerns and it was noted that *"it should naturally prefer that the gold be landed in the UK, with only a cash remuneration being offered to the Russians, but if they insist on other alternatives we are not in a position to object".*

The Department of Trade, which stood to gain the most from a successful salvage operation (receiving as a windfall a third share of the gold), was keen that a contract be issued and the salvage operation go ahead.[6] In 1954, the first contract was awarded to Risden Breazley, a British salvage firm. Strained political relations, inadequate salvage capabilities and a strong suspicion by the British government that the gold may already have been recovered by the Soviet Union led to the project being placed on hold. In 1957, in an attempt to protect the sunken cargo from being plundered, the wreck was designated a British war grave.

In the mid-1970s, triggered by a sharp rise in the price of gold, interest in salvaging the *Edinburgh's* cargo resurfaced[7] as fears grew that the gold could be subject to looting. Risden Breazley had made little progress in locating the wreck and the Salvage Association, acting on the instructions of the Ministry of Defence, (MOD) put the contract out to tender. This time, the contract was awarded to the consortium headed by Jessop. It was based on the standard 'no cure, no gain' rule and a cut of 45% of the value of any gold recovered. The consortium's method of approach for the recovery of the gold was a favourable feature in them being awarded the contract. Rather than the traditional 'blast and grab' using explosives, a method proposed by its competitors, Jessop's consortium opted to use the newer underwater precision cutting technique.[8]

"A two-man team worked around the clock from a diving bell attached to an umbilical cable that supplied breathing gases and hot water that heated their diving suits as they worked."

As media reports about the hunt for the *Edinburgh* appeared, mounting opposition came from many of the ship's survivors and the families of those who had been killed, who were appalled that the war grave may be disturbed. The Kendal branch of the Royal Navy Association motioned that pressure be brought to prevent the "deliberate desecration of HMS *Edinburgh* by salvaging her cargo".[9] The MOD released a statement addressing these concerns, observing that:

> *"we want to ensure that the sanctity of the ship as a war grave is properly considered in any salvage operations... we are usually against diving operations in circumstances of this kind. But in the case of any wreck containing a valuable cargo it is better to allow an operation while imposing strict safeguards".*[10]

The consortium felt that the best way to head off any further opposition was to begin the salvage operation as soon as possible.

Salvage of the Century

Keith Jessop had undertaken years of meticulous research about the *Edinburgh*. From Admiralty records, survivor accounts and reports from local fishing vessels whose nets had snagged on underwater obstructions, a search area was identified. In April 1981, once Russian agreement was secured, a survey expedition set sail to the Barents Sea. On 14 May, with the assistance of echo sounders and powerful sonar equipment, contact with a wreck was made. A Remotely Operated Vehicle (ROV) was sent down for a closer inspection. After completing a full reconnaissance survey, there was no doubt the wreck was indeed that of the *Edinburgh*. She was lying on her port side in a remarkably good condition. An exact fix on the location was made using state-of-the-art navigation and position-fixing equipment by Decca, which had installed two Hi-Fix masts on the northern coast of Norway.

Back in London, HMS *Belfast*, the sister ship to the *Edinburgh*, proved a valuable resource (HMS *Belfast* is now a permanent exhibition operated by the Imperial War Museum, located on the south side of the Thames near to the Tower of London). The project manager engaged by the consortium, John Clark, exRN, gained special access to plans for the layout of the ship, and together with detailed drawings of the bomb room and racks where the gold had been stowed, created a scale model of the ship to help familiarise the divers with the layout of the wreck.

At the end of August 1981, a specialist diving vessel, the *Stephantium*, set sail for the wreck site. Onboard were Jessop, a crew of 25 saturation divers and support personnel, and the media team together with two Russian officials and one representative from the MOD. Due to the fact that they were operating at depths of 800 feet, the divers had to be kept under constant compression, confined to a steel chamber with no physical contact with the outside world. A two-man team worked around the clock from a diving bell attached to an umbilical cable that supplied breathing gases and hot water that heated their diving suits as they worked. A revolutionary gas-reclaim system designed to save up to 90% of the gas used was instituted. This meant that the *Stephantium* could say on location longer without having to make the long journey to shore to replenish its gas supplies. The vessel was held in position over the wreck by means of a computer-controlled dynamic positioning system that protected the divers from being dragged along the seafloor as they worked.[11]

Figure 2: One of the few remaining gold bars recovered from HMS Edinburgh, reproduced with kind permission of HSBC

4 TNA, FO 371/111/740, Department of Trade to Foreign Office, Northern Desk, 12 Mar 1954.
5 TNA, FO 371/116/756, Jellicoe to Ministry of Transport & Civil Aviation, 29 Dec 1955.
6 TNA, FO 371/111/740, Foreign Office notes, 29 Mar 1954.
7 In 1979, the price of gold opened in January at $226 an ounce and closed in December at $512. In January 1980, gold hit a record high of $850. The causes for the increased price included rising inflation, Opec-led spikes in oil prices and strained political conditions, the storming of the US Embassy in Tehran and the Soviet Union increasing its military strength near the Afghanistan border with Iran.
8 TNA, J 67/960/2, Central Criminal Court Case File, John Austen Jackson and Keith Jessop, Witness statement Simon John Butt, 5 Aug 1982.
9 Jessop, *Goldfinder*, p.332.
10 Imperial War Museum (hereafter IWM), Exhibition file HMS *Belfast*, Naval Law and Conditions Division, Ministry of Defence to IWM Trustees, 24 Dec 1981.
11 Ric Wharton, *The Salvage of the Century* (US, Best Publishing Co., 2000), pp.110-2.

The divers were unable to enter the wreck through the torpedo hole, as it was found to be blocked by wreckage and ammunition, so an access hole was cut through the four-inch armour plated hull. It took a week of arduous work to clear a way through the fuel tank area to the bomb room. On 16 September, cries went up that the gold had been found. The first bar, KP 0620, later renumbered P90014, was sent up to the surface. At the start of October, the weather closed in and operations were suspended. The divers had successfully recovered 431 of the 465 gold bars. Before departing from the site, a service of remembrance was held in honour of the men killed in 1942. The gold haul then had to be shared out between the relevant parties. The bars were loaded onto the *Stephantium*. In Murmansk, the Russian share of 158 bars was offloaded and placed into a waiting railway carriage. The remaining 272 bars were transported to Peterhead and divided on the following basis: 111 to the Department of Trade and 161 to the consortium. They were then transported by road to the Bank of England.[12]

Figure 3: On a visit to the Bank of England gold vaults in December 2012, the Queen and the Duke of Edinburgh inspect a selection of gold bars of special historical interest. The collection includes one of the bars recovered from HMS Edinburgh.

On arrival at the Bank's vault, the condition of the bars was inspected and they were weighed and all the details recorded. Questions had already been raised over the 'good delivery' status of the bars, as they had been produced at various Moscow state refineries between 1937 and 1942 that had not appeared on any good delivery list. In the absence of assay certificates, a sale in the London gold market could have proved difficult, if not costly. A charge of 60 pence per ounce of gold was quoted to make the bars 'good delivery'. So as not to attract unseemly commercial gain from the operation, it was suggested at the Bank of England that the bars be exchanged for acceptable bars. The consortium agreed and besides keeping a few of the bars as a 'family heirloom' (at a value £95,000 per bar), it exchanged its share for good delivery bars. Two of the Edinburgh bars were purchased on behalf of the EEA and form part of the reserves, and from time to time they are included in displays at the Bank, along with several other bars of special historical interest. The remaining bars were sent in batches to the Royal Mint, where they were melted to produce gold sovereign coins.[13]

“In the absence of assay certificates, a sale in the London gold market could have proved difficult, if not costly.”

The salvors bars were subdivided between JMR, 2W, Decca and OSA. The consortium had appointed bullion dealers at NM Rothschild & Sons to act on its behalf in the sale of the gold. The appointment ensured that the consortium was able to take advantage of postponed accounting on the 15 percent VAT due immediately the gold was landed in the UK. VAT had been an unexpected expense, for under the original contract the bulk of the consortium's share was to be paid in sterling. However, the Russians were so short of hard currency that the consortium was forced to take its share in gold. While it accepted that it would have to pay tax on any money earned from the salvage, at no point had a VAT liability been mentioned until after the salvage was underway.[14] Had the consortium realised this earlier, it would have sold its share of the gold abroad. It later rankled that an outstanding interest payment due to the consortium was withheld by the Department of Trade. The matter dragged on for a number of years and eventually the consortium was forced to forfeit the outstanding amount due, as it had signed away any rights to the balance when it was awarded a new contract for a second successful dive on the wreck to retrieve the remaining 34 bars. Wharton reflected on his treatment and the behaviour of the British government, the Inland Revenue, Customs and Excise, and members of the civil service as "petty and dishonest".[15]

To add to the dismay of the consortium, Keith Jessop and an employee of The Salvage Association became the subjects of a police enquiry. Both stood trial accused of conspiring to defraud the unsuccessful bidders for the *Edinburgh* salvage contract but were acquitted of all charges. Nevertheless, the whole affair had tarnished the reputation of Jessop Marine and its ability to function until Keith cleared his name. Until his dying day, he believed that he was a victim of a conspiracy.[16]

In conclusion, the choice before the MOD was whether to leave the war grave unprotected to the depredations of would-be salvors, or to forestall them by permitting recovery of the gold under controlled conditions. In the interest of the war grave, there could only be one answer – a controlled salvage. Operating at the limits of technology at the time, the consortium headed by Jessop took advantage of new diving techniques and equipment to ensure a successful recovery of the gold. In the planning, preparation and execution of the operation, considerable care was given by all concerned to preserve the war grave status of the wreck, though there were lessons to be learnt. Perhaps the greatest lesson that came from the salvage of the *Edinburgh* was that advances in diving technology had put a great many wrecks within the reach of the modern diver. As for the *Edinburgh*, the second dive under controlled conditions recovered 29 of the remaining 34 bars, thus ensuring this war grave may forevermore rest in peace.

Dr Michele Blagg (BA(hons), MA, PhD) is a visiting Research Associate at the Institute Of Contemporary British History(ICBH). As part of a collaborative doctoral award granted by the Art's and Humanities Research Council, she was based at the Rothschild Archive, London. Her doctoral research focused on the Royal Mint Refinery, operated by N M Rothschild & Sons between 1852 and 1968, and how it adapted to the changed London gold market. Her areas of interest are in financial and business history with special regard for the actors and networks located in the London market. Her publications include 'Gold Refining in London: The End of the Rainbow, 1919-20' in The Global Gold Market and the International Monetary system from the late 19th century to the present (forthcoming, 2013); 'The Royal Mint Refinery, a business adapting to change' in Business Archives Council, Sources and History. She teaches on the ICBH MA in Contemporary British History and assists with the Witness Seminar Programme. She sits on the Business Archives Council Executive and is involved in the annual 'Meet the Archivists' workshop held in the City that aims to explore ways in which research students can identify and use business records in a variety of different research fields.

12 Ibid.
13 The Bank of England Archive (hereafter BEA), FE6/6/2 Vol.1, Bullion Department to Department of Trade, 21 Oct 1981. Also notes regarding telephone conversation with Bullion Office NM Rothschild & Sons.
14 Jessop, *Goldfinder*, p. 320.
15 Wharton, *Salvage of the Century*, p.163.
16 *The Times*, Obituary Keith Jessop (1933-2010), 29 May 2010.

Rand Refinery is the world's largest single site gold refining and smelting complex. Our diverse range of industry leading services includes smelting, refining and fabrication. With an extensive global network, Rand Refinery offers world-class state of the art logistics services for the transport of precious metals via land, sea and air. As the only LBMA referee in the southern hemisphere, we are able to deliver ethical, responsible and cost-effective solutions to a growing list of global clients. So whatever your gold related business needs are, you can rest assured that we have the experience and expertise required to turn your vision into reality.

RAND REFINERY
STRIVING FOR PERFECTION

Rand Refinery (Pty) Ltd, Refinery Road, Industries West, Germiston, 1401 | P.O. Box 565, Germiston, 1400, South Africa
Tel: +27 (0)11 418 9000 | Fax: +27 (0)11 418 9231 | Email: gold@gold.co.za | www.randrefinery.com

After the Gold Crash

By Adrian Ash, Head of Research, BullionVault

What caused last spring's historic crash is less important now than how it has changed our market since. Gold prices fell 30% across 2013, yet squeezed nearly all that drop into Q2 alone and achieved almost half of it in two days in April. Such violence unleashed Asian bargain-buying, needed to match Western selling...

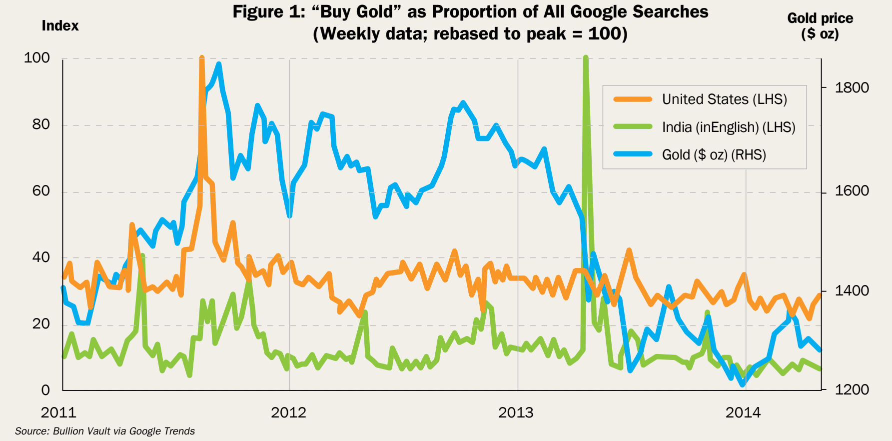
SPRING 2014 marks several anniversaries for the bullion market – 60 years since the resumption after World War II of London's daily fixings for instance, or three years since silver touched $50 per ounce for the second time ever, and ever so briefly again. Gordon Brown's ham-fisted announcement of UK gold sales in May 1999 still captivates public memory in the UK. But perhaps our market's biggest anniversary this spring should also be a first. Because it marks one year since the historic crash in gold and other precious metals prices starting in mid-April 2013.

Goldman Sachs had advised clients to short gold early that week. Cyprus was told to sell gold on Thursday by the EU and IMF. Gold prices fell into London trade on Friday 12 April, dropping as the market closed for the weekend through $1,530 per ounce – the previous 18 months' low – only to slump another 3.5% by the time New York trade ended. Then on Monday the real trouble showed up. Fellow members need no reminding (and most will want it still less). But the way last year's crash unfolded, and how it altered demand worldwide, deserves study. Because whether those changes now prove permanent looks critical to our market. The crash also highlighted unique features, most plainly in gold, which may prove more lasting.

Across last year as a whole, gold prices fell some 30% – the same amount US equities returned to investors in total. Yet gold squeezed almost all of 2013's drop into the second quarter alone, down 25.4% in dollar terms, and half of that was achieved in just those two days in April. A second slump to $1,180 per ounce then marked gold's low of the year, hit on the last trading day of June and again on New Year's Eve. Prices have essentially been flat for 12 months now, closing between $1,200 and $1,400 on a monthly basis. Viewed as a market reset, therefore, gold's drop was swift and successful. Because while the slump was in fact finished by midsummer, the wrenching loss in Q2 forced Western sellers, whenever they then sold, to accept the discount prices needed to unleash bargain buying from Asia in particular. The surge in consumer demand for gold jewellery, bars and coins very nearly matched the outflows from exchange-traded trusts and other investment vehicles. But this extra demand wasn't for the securitised form those investments took. Nor was it local to where their underlying bullion was held.

Unique amongst major asset classes, physical gold enjoys a diverse set of buyers worldwide, with very different motives. Industrial use accounts for around 10% of annual demand, proving highly inelastic in tonnage terms over the last decade based on Thomson Reuters GFMS data, despite the 300% swing in annual average prices. All other demand broadly splits between jewellery and investment, but within those categories lie many different markets with very different behaviours, some of which were extended by spring 2013's price crash, while others briefly reversed. To supplement supply and demand tonnages, Figure 1 below shows interest in buying gold amongst internet users in the USA and India. Google Trends shares search volume data as a proportion of all queries on the search engine, rebasing peak interest to 100. Measuring searches for 'buy gold' in English shows that both Indian and US consumers usually have much more pressing concerns, whether 'Miley Cyrus' or 'Shilpa Shetty'. But mapped against the gold price, spikes in that query confirm that, for public interest in buying gold to become most urgent, the US needs rising prices, while India prefers a discount. Added urgency came in spring 2013 because the Indian government was accelerating its moves to the current *de facto* ban on legal imports. Levels of interest in the US also spiked, and full-year household demand for gold bars and coins did rise by weight from 2012 according to Thomson Reuters GFMS data (see Figure 2). But as a proportion of all Google searches, 'buy gold' in the US reached only three-quarters of its summer 2011 peak, and full-year demand lagged the 2008-2011 average by almost one-third in tonnage terms, despite the price drop.

Figure 1: "Buy Gold" as Proportion of All Google Searches (Weekly data; rebased to peak = 100)



Source: Bullion Vault via Google Trends

India's world-leading private consumption, in contrast, hit record levels in 2013, leaping so fast on April's crash that the government finally

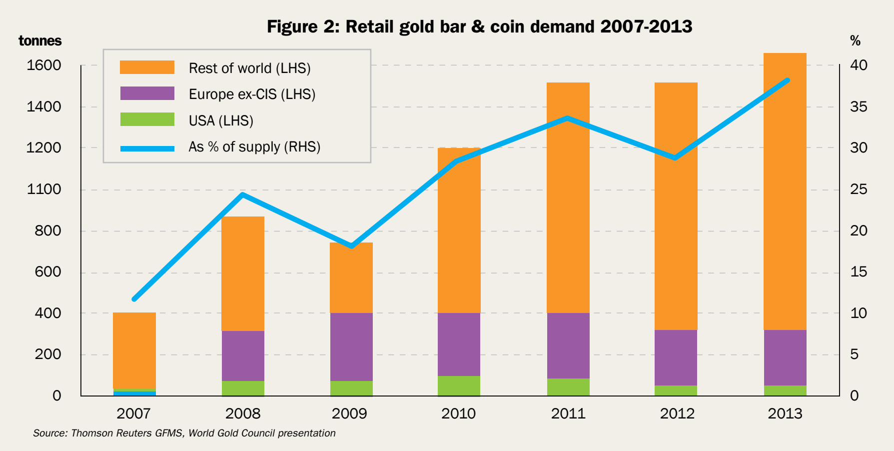


Figure 2: Retail gold bar & coin demand 2007-2013

Source: Thomson Reuters GFMS, World Gold Council presentation

brought down the shutters, hiking import duty to 10% and then imposing the '80/20 rule', which forces dealers to re-export 20% of any new shipment before taking delivery. Smuggling has clearly solved that riddle, but as the grey market doesn't hit the official Current Account Deficit, the ban has helped the rupee to recover on the FX market at the cost of hurting India's legal gold industry. China's gold demand meantime rose faster still, finally taking over from India as the world no.1 and swallowing well over 1,160 tonnes of imports based on official data, even while continuing to top the league table of gold-mining nations with a further 440 tonnes of supply. Looking at retail bar and coin purchases (see Figure 2), China accounted for 30% of the 2013 jump in global demand, pushing it to new highs both in tonnes and compared against full-year supply. China also accounted for almost half the growth in world jewellery consumption, another new record. But for all that additional Asian consumer demand, it failed first to stem or then reverse last spring's crash.

Much has been written about Western investment funds exiting gold in 2013. Their changed view as the year began clearly prepared the ground for Q2's drop – a mix of boredom, greater allocations to equities, and not wanting to be last out the door, even as Western households regained their strongest interest in gold since 2011, briefly aping a more 'Asian' response to the drop. The thinking of money managers going into and during the financial crisis, however, with its concomitant peak in the gold price, looks hard to split from broader public sentiment, especially amongst higher earners (see Figure 3). Opinion-poll specialists Gallup only added gold to its menu of 'best long-term investments' in 2011, and only then in what seems an urgent survey as prices broke through $1,900 per ounce that August. (Previous and subsequent surveys were conducted each April, each again of around 1,000 respondents.)

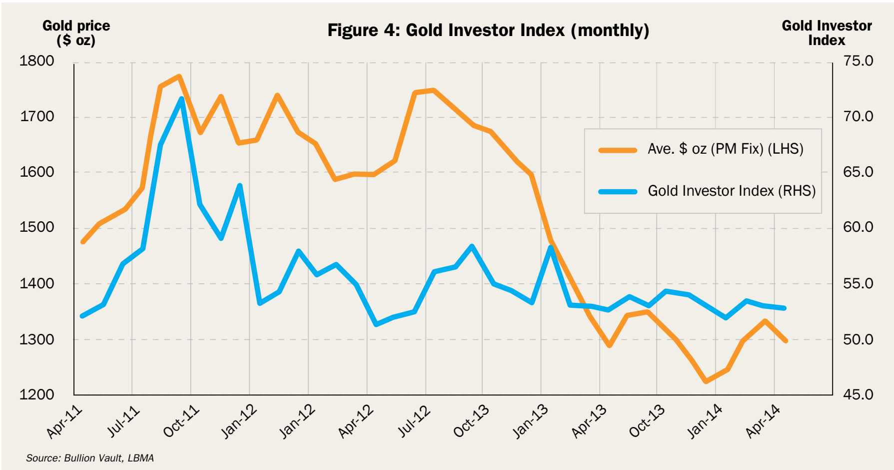


Figure 4: Gold Investor Index (monthly)

Source: Bullion Vault, LBMA

> *"As the largest provider of vaulted gold ownership online, with 52,000 users primarily in the Eurozone, UK and North America, we believe the index offers a useful window onto Western household investment activity and sentiment"*

While gold's popularity has ebbed since then on Gallup's surveys, it has ceded first place only to real estate, and that headline rate itself belies gold's continued top ranking amongst the two lower, much larger income categories that the pollsters apply. This highlights ongoing but untapped (and perhaps merely wishful) demand for investment gold amongst US households, at least as far as opinion polls go.

What then of actual private investor behaviour in the West? Again, to supplement the available tonnage data, our Gold Investor Index gauges the number of people who grew or reduced their gold holding using BullionVault each month, as a proportion of all existing gold owners at the start (see Figure 4). As the largest provider of vaulted gold ownership online, with 52,000 users primarily in the Eurozone, UK and North America, we believe the index offers a useful window onto Western household investment activity and sentiment. Rebased so that 50 shows a perfect balance of net buyers and sellers, the Gold Investor Index spiked in April 2013 to the highest reading since the end of 2011, reminiscent of India and China's response. While that initial bargain-hunting surge wasn't repeated during the June crash, and while the index then retreated to an 18-month low as gold prices flattened into New Year 2014, the index has remained above 50 throughout, signalling a positive balance of net buyers over sellers. However, total client holdings on BullionVault haven't quite recovered spring 2013's liquidation by weight, ending April 2014 some 0.1% shy of March 2013's 33.0-tonne total. So the actual behaviour shown on our index perhaps supports the income-category numbers from Gallup's poll, with larger investors who took refuge in gold during the financial crisis reducing their allocations as investors now building their savings make sure they include physical bullion. This extended lull in gold price volatility offers newer entrants the chance to build their holdings quietly.

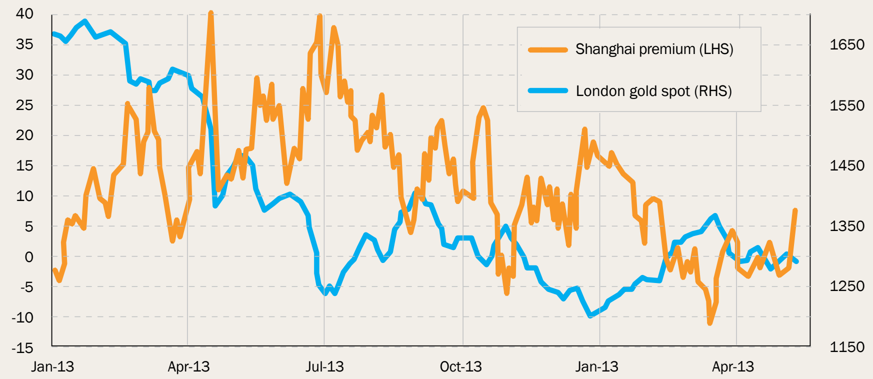
Anecdotally, from speaking to BullionVault users as well as competitors in retail bullion, it would indeed seem that the financial crisis peaking in 2011 looms larger than the precious metals crash of spring 2013. That is just as it should be. Gold remains the best-performing major asset class of the last 10 years. Although it was

Figure 3: Which is the Best Gold Investment?

	Aug 2011	Apr 2012	Apr 2013	Apr 2014
Gold	34	28	24	24
Real estate	19	20	25	30
Stocks/mutual funds	17	19	22	24
Savings/CDs	14	19	16	14
Bonds	10	8	9	6
Gold only, by income				
$75,000 and over	31	23	22	18
$30-$75,000	40	34	24	26
Less than $30,000	34	22	24	31

SourceL Bullion Vault via Gallup

Figure 5: Shanghai vs. Spot Gold (weekly average in $ oz)



Source: Bloomberg

gold's worst calendar quarter on record, April-June 2013 was not its worst 90-day drop. That came in spring 1980, when prices fell over 40% from gold's $850 top. Nor was spring 2013's gold crash as dramatic as the most recent slump in US equities. The Lehman's collapse of autumn 2008 proved harsher even than the worst 90-day drop around Black Monday 1987, knocking nearly 30% off the Dow Jones Industrial Index. So one surprise from spring 2013 may be that gold prices didn't fall further. Because unlike exchange-traded contracts, physical bullion has no circuit breakers, no daily price-move limits or 'stop logic'. Yes, the CME applies the latter to gold and silver futures contracts, and several such pauses in Comex trading were triggered last spring. The CME is now considering daily price limits, too. But the intraday movements of last April's crash were smallest during London hours, when the vast bulk of business is conducted directly between buyer and seller 'over the counter' (OTC) rather than via an order-matching exchange with a centralised clearing house. Moving 5.3% on Friday 12 April from its high to the low on the spot-month futures contract, gold moved only 0.8% from the am to pm fix in London. The following Monday, the am to pm London fix moved 1.5% versus a high-low swing of 10.7% in the spot-month future. Contrast this with the failure of OTC credit-derivative markets during the financial crisis. Whatever regulatory (or legal) pressure comes to bear on the fix, or on London's principal-to-principal market, these pre-digital mechanisms plainly offered a welcome point of deep liquidity to buyers and sellers alike during spring 2013's volatility.

Another challenge to London's dominance in bullion dealing post-2013 looks more fundamental. The spike in Chinese and Indian premiums over and above London prices, caused by the crash and the demand it released, incentivised a massive shift in the world's tradable stockpiles out of UK storage through Swiss and Middle East refineries and onto Asia. Spring 2014 has now found China oversupplied, with Shanghai gold offered at a rare discount to the world's benchmark of London settlement. Provided China's private appetite for gold holds firm – and does not reverse – then lower volatility would look a likely result for all participants, as the Shanghai arbitrage becomes part of the world price. The prolonged if slight 'London premium' of February to May 2014 may signal the start. China is after all the world's no.1 miner, consumer and importer. We don't yet know how the world's heaviest gold demand will react to a slump in household income or savings. But with China now deeply plumbed into the global economy, the tide of debt defaults now lapping at its $7.5 trillion shadow banking industry could hit capital markets worldwide. The West's financial crisis showed that scared money, big or little, buys gold. The metal's huge outperformance across the last decade says the smart money buys gold in advance.

Adrian Ash, Head of Research, BullionVault
Adrian Ash has been Head of Research at BullionVault since 2006. Formerly Editorial Chief at the UK's largest publisher of private-investor advice, and also City Correspondent for the popular Daily Reckoning email, he is now frequently quoted by leading news outlets worldwide.

LBMA Bullion Market Forum
25 June 2014

The Marina Bay Sands Hotel,
10 Bayfront Avenue,
Singapore, 018956
www.lbma.org.uk

Registration open

See the LBMA Website for further details regarding registrations, hotel and speaker programme.

If you are interested in exhibiting, please contact collett.roberts@lbma.org.uk for more information.

Responsible Sourcing – The Importance of Being Earnest

By Olivier Demierre, Senior Vice President Corporate Responsibility, MKS PAMP Group

Olivier Demierre describes the rationale for Responsible Sourcing and illustrates how MKS PAMP has for long worked with a number of bodies and industry participants to implement this exigence in the precious metal industry.

The MKS PAMP Group provides support to Partnership Africa Canada (PAC) in its gold supply chain project in the Democratic Republic of Congo (DRC). The aim of the PAC project, through incentives to the different actors involved, is to progressively divert gold supply chains from the illegal channels towards the legal channels and then to the international markets. The PAC works towards building a transparent supply chain from the miner (the goal is to assist about 10,000 miners in the medium term) through to the export of gold from the DRC. MKS PAMP has invested significant time and effort to advise PAC on the diligence requirements to be met along the supply chain, while taking into consideration the facts on the ground. MKS PAMP has also performed an in-depth on-the-ground evaluation of the project in the DRC to fine-tune the diligence needs and thus provide the best possible support to the PAC project. Why?

The Times They Are A-Changin'

It is no secret that there has been a dramatic shift in the importance consumers place on responsible and sustainable sourcing. However, over the past few years, this approach has spread to governments, supranational bodies and investor communities. It has become clear that the sourcing policies, practices and supply chains of state entities now also face ever increasing scrutiny.

A number of industries have suffered reputational damage as a direct result of issues within their supply chains. The electronics industry has been criticised in the press regarding the standard of working conditions for subcontractors (be they first-tier or further down the chain).[1] The tragic building collapse in Bangladesh (see photograph below) highlighted the impoverished conditions of subcontractors in the garment industry,[2] and prior to that, conflict diamonds[3] were symbolic of supply chain malpractices. Each incident has not only had a strong negative media impact on all the immediate entities within the relevant supply chain, but has also tarnished broader industry participants who have subsequently found themselves to be perceived as guilty by association.

The gold industry has not been spared either. Recent news stories have reported cases not only of severely substandard conditions[4] and dramatic environmental damage,[5] but also cases of alleged or demonstrated due diligence failures in gold sourcing. Artisanal and small-scale gold mining (ASM) is responsible for the emission of an estimated 727 tonnes of mercury per year (or 37% of the world mercury emissions).[6] While being the nexus of many of the gold industry sustainability concerns, ASM provides about 15 million jobs within local communities around the globe and supports the livelihood of an estimated 80-100 million people. Much of the media has been vehement in its coverage of these stories.

Savar, Bangladesh. Rescue workers taking part in the rescue operation following the collapse of the garment factory in April 2013.

1 In early 2010, a series of high-profile worker suicides at Hon Hai Precision Industry Co., better known as Foxconn, drew an enormous amount of media scrutiny to poor working conditions at the firm's vast manufacturing facilities in mainland China.

2 For example, the Savar building collapse in Bangladesh that caused 1,129 deaths and injured 2,515.

3 First sanctioned by a United Nations ban in 1998.

4 Forced labour cases were reported in a number of African countries.

5 For example, deforestation in Madre de Dios, Peru.

6 United Nations Environment Program, Global Mercury Assessment 2012.

As a result of these factors, the gold industry has, and is undergoing, a thorough change of regulatory practices. This comes in the wake of Article 1502 of the US Dodd Frank Act, which specifically addresses the conflict metals of the DRC and surrounding countries.

In 2011, the OECD also tackled the issue – without limiting the geographic scope – by publishing its *Due Diligence Guidance for Responsible Supply Chain of Minerals*, which is applicable to tin, tantalum, tungsten and gold.[7] In a parallel effort, several gold industry bodies[8] have established their own conflict-free guidance. The LBMA established its guidance covering not only conflict-free gold, but also measures to tackle Anti-Money Laundering (AML) and Anti-Terrorist Financing (ATF). Currently, the European Union is also preparing legislation in relation to conflict-free metals.

> *“By defining and adopting the LBMA Responsible Gold Guidance, which is mandatory for Good Delivery refiners worldwide, LBMA members and refiners have taken a very significant step forward.”*

Changes towards responsible sourcing and other issues falling under Corporate Social Responsibility (CSR) are progressively being pushed forward by a number of supranational bodies:

- The OECD Guidelines for Multinational Enterprises call for a “comprehensive approach to due diligence and responsible supply chain management”[9]
- The European Union (EU) addressed Corporate Social Responsibility at a strategic level. The EU commission states that “to fully meet their corporate social responsibility, enterprises should have in place a process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy”.[10]

Altogether, the trend towards making companies responsible for their CSR policies and processes along their whole supply chain is strong and widespread.

Reputation, Reputation, Reputation

Poor practices at the extraction level, or in the acceptance of sources, not only greatly damage the reputation of the participants within the local supply chain, but also substantially damage the reputation of the industry as a whole.

Trust and precious metals, especially gold, should be synonymous. The MKS PAMP Group considers that the key attribute of our brands is the trust they inspire, or in other words, our reputation. In our view, the most obvious levers to maintain and further enhance this reputation are, and have always been, in setting the highest standards of responsible and sustainable sourcing, along with attention to quality, innovation and transparency.

Stringent, well-enforced standards in an industry help to maintain and grow public trust. They also help the companies that satisfy these benchmarks to distinguish themselves positively from other market participants. In addition, in the unlikely event of an incident, they are better positioned to communicate credibly as to the incident, its impact and its resolution.

By defining and adopting the LBMA Responsible Gold Guidance, which is mandatory for Good Delivery refiners worldwide, LBMA members and refiners have taken a very significant step forward. However, more steps are required in order to further enhance responsible and sustainable sourcing by the industry. Such measures include:

- Extending responsible guidance to other precious metals, and
- Expanding from conflict gold, AML and ATF initiatives to fully fledged Corporate Social Responsibility policies.

These measures should be made mandatory.

The Greater Good

We are of the opinion that responsible sourcing policies across the industry will not only positively impact the sustainability of the precious metals supply chain but also substantially improve the attractiveness of any precious metal product.

Whether out of good corporate citizenship or enlightened self-interest, each industry participant needs to decide their own path to promoting responsible sourcing. And this will of course vary according to a number of factors.

To highlight one such example, these are some of the initiatives in which the MKS PAMP Group is now involved:

At the industry level, the Group was from the start – and is still – intensively involved in the establishment and evolution of the *OECD Guidance for Gold and the LBMA Responsible Gold Guidance*. MKS PAMP also actively contributed to the development of the Responsible Jewellery Council Guidance and the World Gold Council Responsible Sourcing Guidance.

On the ground, we actively support several initiatives that aim to provide ASM mines with access to international markets – provided they meet our standards in terms of responsible sourcing:

- PAMP is a founding and active member of the Swiss Better Gold Association (SBGA). This initiative, a public/private partnership between the Swiss State Secretariat for Economic Affairs (SECO) and Swiss companies, aims to provide certified ASM in Peru[11] with access to international gold markets and a per gram development premium over the gold price, paid for by Swiss jewellery and watch-making brands. Interestingly, one of the critical issues faced by the SBGA is managing a gold demand that is substantially higher than the metal available from certified mines.
- The Group supports the initiative run by Partnership Africa Canada referred to above. The issues faced on the ground are numerous. A significant one is the difficulty to convince local operators to favour legitimate channels over the illegal ones.
- PAMP is an active member of the Private-Public Alliance for Responsible Minerals Trade, which supports initiatives for sourcing conflict-free gold out of the DRC.

The Importance Of Being Earnest – Together

At the MKS PAMP Group, we consider being earnest about responsible sourcing and CSR to be vital for our continued success. However, our success in this particular realm will not come from our own isolated efforts. As each precious metals industry stakeholder plays its own part earnestly and collaboratively, the successes will be enjoyed by all. The goal is clear, but there is still work to be done and thus we will continue to lead by example, while encouraging all other stakeholders to join us.

Olivier Demierre has been a Swiss Certified Accountant since 1992. He was active in audit and business advisory for 15 years until mid-1998, for the most part with Arthur Andersen and then with Swiss Bank Corporation. He then took operational responsibilities as Chief Operating Officer of Société Générale Paris, Zurich branch, until 2000.

In 2000, he joined the MKS PAMP Group, first as Chief Operating Officer of a joint venture between JP Morgan, AngloGold and MKS (between 2001 and 2003), then as SVP Special Projects leading group development projects (such as the set-up of a new refinery in India that is fully operational since 2012).

In November 2012, he was appointed SVP Corporate Social Responsibility. In that capacity, he leads various ASM metal responsible sourcing initiatives for the Group and participates actively in a number of internal/external responsible sourcing initiatives and forums.

7 http://www.oecd.org/daf/inv/mne/GuidanceEdition2.pdf.
8 Namely, World Gold Council, Responsible Jewellery Council and Conflict Free Sourcing Initiative.
9 Declaration on International Investment and Multinational Enterprises, 25 May, 2011.
10 Communication on Corporate Social Responsibility on 10 October, 2011.
11 Other countries are currently being considered for inclusion.

Proficiency Testing Scheme – 2014

By Stewart Murray, LBMA Good Delivery Consultant

The LBMA's annual proficiency testing scheme for gold assayers attracted 41 participants in 2014, similar to the numbers in the previous two years. The results are, as always, of great interest to participating labs as these allow the labs to compare the precision and accuracy of their assaying with their peers. But this year's survey provided evidence that spectrographic analysis, specifically using inductively coupled plasma optical emission spectroscopy, may be used for the determination of gold fineness in relatively low-gold Good Delivery alloys with an accuracy similar to that of fire assay.

A Brief History

The idea of setting up a proficiency testing scheme for fire assayers was first mooted at the 2009 Assaying and Refining Seminar following the presentation of a generic paper on proficiency testing by Prof Michael Thompson of Birkbeck College, an acknowledged expert on this type of testing. Given the level of interest expressed at that meeting, the idea was taken forward by the Referees group and, with the subsequent approval of the Physical Committee, the first scheme was launched in December 2011. To ensure that participants' assays can be submitted with full anonymity (an important aspect of proficiency testing), the LBMA engaged FAPAS – a branch of the UK government's Food and Environment Research Agency, which regularly carries out various proficiency testing schemes mostly for food and food-related products. Incidentally, the LBMA's gold scheme is the only one of this nature that is carried out by FAPAS and the staff there seem intrigued and possibly even excited by the thought that the samples being distributed to participants consist of "pure" gold rather than tins of baked beans, etc.

Who Does What?

The role of the LBMA in the proficiency testing scheme consists of:

- Setting the parameters for each year's exercise with the assistance of the Referees group
- Recruiting participants by advertising the scheme to Good Delivery refiners and other members which run well-established analytical laboratories (and passing this information to FAPAS)
- Distributing the samples and the reporting template to participants (and carrying out the associated invoicing and admin), but importantly, the LBMA receives none of the participants' assay information, which is instead sent to FAPAS
- Discussing the draft report on the scheme prepared by FAPAS within the Referees group and the provision of the resulting feedback to FAPAS.

FAPAS, on the other hand, deals directly with the participants, providing them with their identity codes used in the report and processing the information that they supply, and ultimately produces a draft report for consideration by the Referees group. After the latter's comments have been included, the final report is made available to participants via the FAPAS website.

In reviewing the draft report, the referees may make suggestions about the content, format and/or presentation of the statistical information, both tables and graphs, contained in it. They also prepare the technical section of the report, which includes various conclusions for consideration by the wider refining industry.

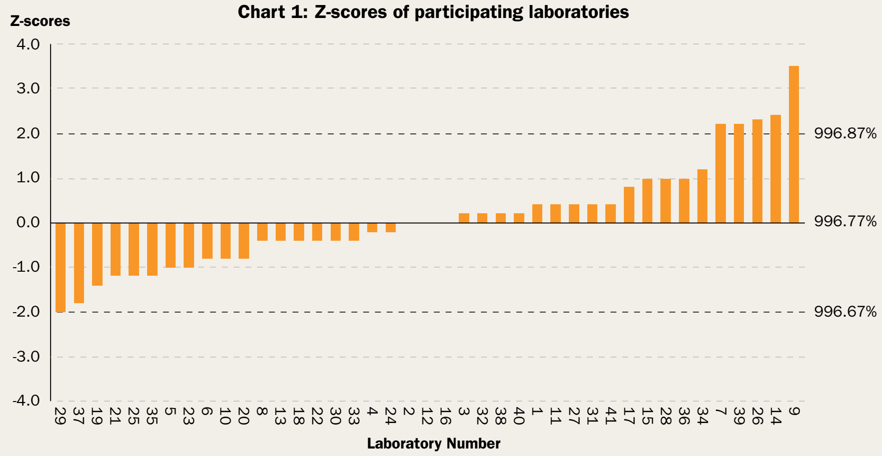
The 2014 Scheme

The gold wire test material, 3.3g of 3mm diameter wire, with a fineness of approximately 996.8, was specially prepared for this year's test by Metalor and cross-checked for homogeneity by PAMP. The main impurities were copper, silver, platinum, palladium, zinc and iron. This contrasts with the previous two exercises, which used existing Good Delivery reference samples. It was considered that using these reference samples resulted in them being used up unnecessarily. The main requirement for a set of proficiency testing samples is that they should be homogeneous. There is no need for their fineness to be accurately determined in advance.

Participants in the 2014 scheme included 38 Good Delivery refiners and, for the first time, three Good Delivery supervisors. The mean fineness of all participating labs was 996.77.

Chart 1 below shows that out of the 41 participating laboratories, five had Z-scores outside the desired -2 to +2 range (all on the positive side).

Chart 1: Z-scores of participating laboratories



What is Proficiency Testing?

Proficiency testing permits participating laboratories to see how their assay results compare in terms of accuracy and precision with those of other participants. The idea is that participants should use their normal methodology for assaying the sample received, rather than an enhanced approach (e.g. with a large number of replicates) that may understandably be used in the case of samples received from the LBMA in connection with Proactive Monitoring. It seems likely, however, that in spite of the anonymity that is an integral part of proficiency testing, labs will assay the samples received with greater than normal care. The scheme report includes the mean and replicate values submitted by the participants together with a Z score for each lab. The Z score is essentially a normalised measure of the divergence of the participant's mean from the overall mean of all results. A high Z score is a warning to labs that they need to consider corrective action to improve their assaying. The report also analyses the data from all participants and presents it in a number of graphs and tables.

Such scores could indicate an analytical problem, and thus those laboratories should make sure they do not have a systematic bias – for example, by comparing their results with those in the 2012 and 2013 proficiency tests, and by continuing to survey their results in the next LBMA proficiency test due to take place in 2015. Although the five labs with Z-scores above 2 do show significant positive divergences from the mean of all participants, it is worth noting that their divergences are within the LBMA's permitted range of ±0.15.

The number of labs using ICP-OES rose again (from seven in 2012 and 10 in 2013 to 12 this year). It is worth pointing out that, as was the case with the 2012 and 2013 tests, the laboratories with the highest average divergences used fire assay rather than ICP (see chart 2).

The 12 laboratories that used ICP as an analytical method had on average almost the same fineness (996.77) as those using fire assay (996.79). This contrasts with the 2012 test (based on a sample fineness 995.34), where the ICP mean determinations were found to be lower than those obtained by fire assay.

Another interesting observation was that the laboratories that were ISO 17025 accredited had on average a much better standard deviation than the non-accredited laboratories. This was not due to the accredited laboratories using ICP. In fact, only one of the 12 accredited laboratories used ICP.

Chart 2: Mean and Standard Deviations versus Method and Accreditation Status

Method and Accreditation status	Participants	Mean	Standard Deviation
Fire assay	29	996.77	0.064
ICP	12	996.76	0.037
Accredited	12	996.76	0.046
Not accredited	29	996.78	0.066
Fire assay, not accredited	18	996.79	0.079

Chart 3: LBMA Gold Assay Proficiency Testing 2012-14

Year	Fineness	Labs	Labs with Z>I2I	No. of Labs using ICP	No. of labs ISO 17025 Accredited
2012	995.34	40	6	7	12
2013	998.28	40	2	10	12
2014	996.77	41	5	12	12

Summary of Three Years' Experience of Gold Assay Proficiency Testing

The proficiency testing schemes carried out by the LBMA during the last three years are summarised below left (see Chart 3).

The format has been essentially the same, with each participating lab being required to submit a minimum of four and a maximum of six trials together with the mean derived from them. One important change introduced in the 2014 scheme was to ask the labs using ICP to report the contents of silver and copper in ppm in addition to the gold content.

The Referees group will discuss at forthcoming meetings the parameters for next year's survey. Possibilities include a higher gold content Good Delivery alloy or for the first time a silver alloy. It is even possible that a future exercise could be based on a carat gold alloy rather than a Good Delivery one. If you have views on what should be the subject of future proficiency testing exercises, please send these to the LBMA's Good Delivery Officer: Jyoti.T.Amin@lbma.org.uk.

Discover the Cloud's Golden Lining

In our digital world, if you don't innovate, be prepared to abdicate. Face it, there's no going back to the days before constant connectivity. The ability to access data, 24/7 has forever changed the landscape of business. As business leaders, we must change and adapt or we will cease to exist. The precious metals market has generally kept pace during this revolution. And recently, key industry members have begun leading the way.

Dillon Gage Metals launched a well-received online trading platform in 2000 called FizTrade.com. Changes in technology have allowed a rapid transition in this digital platform. In fact, it is fair to say that Dillon Gage has transformed into a technology company, not only in the services it provides to its customers,but in the internal infrastructure and systems Dillon Gage leverages for its business.

As a global precious metals market maker, Dillon Gage has been a leader in the industry for over 25 years. As such, it would be easy to rest on its market position and reap the profits from a broad set of services including distribution, depositories, and refining. But that has never been the Dillon Gage corporate mindset and this forward-thinking mission has garnered accolades. In a recent CIO Summit held in Seattle Washington, Microsoft recognized Dillon Gage for its technical leadership around Microsoft Azure, Office 365 and its movement of 100% of its technical infrastructure to the cloud. Dillon Gage's CIO, Tom Grounds, shared the stage with the likes of the NASDAQ CIO among other Fortune 1000 company technology leaders. The two prominent questions were "why did you do it" and "how did you get it done?"

To understand the second question, we need to explore the first. In 1990, Paul Pilzner, an author and entrepreneur, published a book called *Unlimited Wealth,* where he explored the concept of the "technology gap" in companies and industries. Pilzner defines the "technology gap" as the "best practices available with the current knowledge, and the practices actually in use." In 2012, Dillon Gage recognized that change was coming after a 5-year bull market in precious metals. What they found was a huge gap between what was being used in the industry and what the general coin dealer had at his or her disposal. This led to the creation of a new business unit at Dillon Gage, Digital Metals.

Digital Metals is bringing solutions to its dealers from spot prices and charts to eCommerce applications and trading platforms. Most recently Dillon Gage launched the *Closed Loop IRA*™ from the Digital Metals Platform. With the advent of Digital Metals, Dillon Gage has moved from being a wholesale distributor, refiner and storage provider; to being a technology company providing those services to its customers. In addition to providing core metals solutions, Dillon Gage provides technology solutions and services to its customers in order to help them lower their costs and improve their market reach. The results have been amazing!

The recognition by Microsoft is a confirmation of the technology investment necessary to deliver Digital Metals to its customers. In the "new normal" CIOs are business consultants and business leaders need to understand and adopt technology to stay ahead of the competition.

Call information on how Digital Metals can help your business, please call 866-494-3577.

DM DIGITAL METALS
PLATFORMS POWERED BY DILLON GAGE

www.DigitalMetals.com

LBMA Annual Party - 2014

The LBMA's Annual Party was held this year at the Café de Paris on Thursday 6th March. The theme of the party was 1920s – The Great Gatsby. Over 250 Members and Associates joined in the fun and were entertained throughout the evening by the nimble dancing of the Flapper Girls, the distinctive sounds of the swinging jazz band, The Shirt Tail Stompers and last but not least the inimitable singing of Hannah "the Voice" May. There was also a games room and acrobatic dancers to help keep the entertainment flowing, as well as a photo booth, complete with an array of 1920s style accessories, which provided plenty of amusement.

The two best dressed awards went to Martyn Smith, Royal Mint and Jessica Rotceig, Natixis, (see below) for their authentic style outfits. There was also a prize for the person who scored the highest points on the gaming tables, with Dawn Miller from Jeffries Bache scooping the top prize and a bottle of champagne.

The party provides an opportunity for staff of Members and Associates to network and socialise in a relaxed and informal atmosphere. By all accounts a thoroughly enjoyable evening was had by all.

To view the photos from the event please log in to the Member's section of the website at www.lbma.org.uk

Heraeus

Heraeus proudly announces its 40th anniversary in Hong Kong!

With its 163 years of experience in Precious Metals, Heraeus supports our local partners and friends for already four decades with quality, reliability and best services. We proudly serve our Asian partners in precious metals with refining and trading services, precious metal products and semi-finished items for the jewelry industry.

High purity metals managed according to the latest standards are the key success.
Heraeus would like to thank all customers for their loyalty and support.

Heraeus Limited
Heraeus Technology Centre
30 On Chuen Street
On Lok Tsuen
Fanling, N.T., Hong Kong
Phone +852 2675-1200
hlh@heraeus.com
www.heraeus.com.hk

Heraeus Metals Hong Kong Limited
Room 2111-2113
21/F Peninsula Square
18 Sung On Street
Hunghom, Kowloon, Hong Kong
Phone +852 2773-1733
tradinghk@heraeus.com
www.heraeus.com.hk

LBMA
GOOD DELIVERY
REFINER

AuRM3 – a New LBMA Gold Reference Material

By Stewart Murray, LBMA Good Delivery Consultant

The LBMA is pleased to announce that work has been completed on a new certified reference material (RM), known as AuRM3, which as its name implies, is the third gold RM to have been produced since the LBMA programme was initiated in 2008. In contrast to AuRM1 and AuRM2, which were developed and sold as a set of two, AuRM3 is sold singly. But the major difference with AuRM3 is that in contrast to the previous RMs, whose fineness was around the 999 level, the new RM is more relevant to the lower end of the gold Good Delivery (GD) alloy range. It has a fineness of approximately 995, with substantial additions of silver and copper, together with trace amounts of 10 other elements that are commonly found in commercial 995 gold. The target composition of AuRM3 was determined by the project Steering Committee based on a detailed survey of GD refiners carried out in 2010 and discussions at the Assaying and Refining Seminar in March 2011.

While AuRM1 and AuRM2 were primarily intended to be used by labs for checking the calibration of their spark spectrometers when analysing high-purity gold, the size of the AuRM3 disks will also allow them to be used in X-ray fluorescence (XRF) analysis and specifically at lower gold contents in the GD range. This form of analysis is increasingly being used in the precious metals industry, both for checking incoming raw material and for production control in gold refineries. XRF is also used for determining the fineness of jewellery in assay offices and even in retail stores in markets such as India where there is a widespread practice of buying back old jewellery from customers. Like the previous LBMA reference materials, AuRM3 can be used in spark-OES spectrometers, and (by taking shavings from it) it can be used for checking the calibration of ICP-OES equipment. So AuRM3 is a three-in-one reference material.

In order to facilitate its use in laboratory XRF spectrometers, AuRM3 was produced in the form of a disk of diameter 30mm and thickness 5mm, weighing approximately 68g. Production was limited to 50 units, which is enough to satisfy the pre-orders from GD refiners and LBMA Members, and to leave a small number for subsequent sale to other labs.

The certified values and uncertainties for the 12 added elements are shown in the table below.

Element	mg/kg	Uncertainty (2xSt Dev)
Ag	4456	95
Cu	317	11
Fe	21.0	2.3
In	15.4	1.2
Ir	6.3	1.8
Ni	13.4	1.0
Pb	23.6	2.2
Pd	25.8	2.5
Pt	25.4	1.6
Sn	12.2	0.7
Ti	7.8	1.3
Zn	12.6	1.5

The certificate accompanying AuRM3 provides full details of the manufacture and assaying procedures involved in developing this reference material.

Production

In April 2012, the LBMA circulated a request for quotations to all GD refiners based on a detailed specification drawn up by the Steering Committee, which as well as specifying the form and composition of the new RM, also described the arrangements for checking the homogeneity of the cast ingot from which the individual RM units were prepared. After reviewing the quotations submitted, the Steering Committee decided to award the contract for the production of the RMs to Krastsvetmet (which was also responsible for the manufacture of the LBMA's two silver RMs). The initial stage of production involved the casting of an approximately 6kg ingot containing the target elements, which was then rolled and surface machined to the final thickness of 5mm. It goes without saying that the homogeneity test must demonstrate that all parts of the cast ingot have the same chemical composition. This was established by two labs (Krastsvetmet and the Rand Refinery) carrying out a very detailed analysis of all the contained elements in nine squares that were cut following a predetermined pattern from the rolled ingot. Analysis was performed at the surface, centre and halfway between on each of the nine pieces. The results were analysed by the Steering Committee using an Analysis of Variances programme designed by its Chairman, Dr Mike Hinds of the Royal Canadian Mint. This analysis demonstrated that, to all intents and purposes, the cast ingot was homogeneous.

The next stage involved the accurate determination of the concentrations of the added elements. In February this year, 12 laboratories that had agreed to act as assayers for the project (listed below at the end of this article) were each sent 25g of shavings produced from the cast ingot and asked to provide their analyses of the 12 added elements using a method with traceable standards. All 12 labs used ICP-OES for these determinations. Traceable, incidentally, means that the solutions used to calibrate the spectrographic equipment have been prepared using quantities of the individual elements that can be traced back to the standard SI units of weight. All the analyses were reviewed by a meeting of the Steering Committee on 13 March prior to which each member had used a Grubbs test to highlight any contributions that could be considered as outliers. The meeting also decided to ask some labs to carry out further analyses of some of the elements. The original and new results were then reconsidered at a meeting of the Committee on 6 May, which decided on the final concentrations and uncertainties to be included on the certificate.

Purchasing AuRM3

While stocks are available, AuRM3 can be purchased from the LBMA Executive at a price of $2,750 per unit plus the cost of the contained gold at the current London fixing price at the time of ordering. VAT will be chargeable where appropriate, depending on the location of the purchaser. Shipment costs will be charged in addition. Purchasers should contact: Emma.Attridge@LBMA.org.uk.

Thanks

The LBMA is most grateful to Dr Mike Hinds of the Royal Canadian Mint and the other members of the Steering Committee for the time and expertise that they have devoted to this project:

Chen Jie, Great Wall Gold and Silver Refinery
Jonathan Jodry, Metalor
Dirk Hofmans, Umicore
Hitoshi Kosai, Tanaka
Madeleine Theron, Rand Refinery

The LBMA would also like to thank the laboratories that participated in the analysis of the shavings: Argor Hereaus, Allgemeine, Aurubis, Japan Mint, Krastsvetmet, Metalor, PAMP, Perth Mint, Rand Refinery, Royal Canadian Mint, Tanaka and Umicore.

Regulation Update

By Sakhila Mirza, LBMA Regulatory Affairs Consultant

Responsible Gold Guidance (RGG) – Compliance

The following refiners have successfully passed the LBMA's Responsible Gold Guidance Programme since the last issue of the *Alchemist* was published:

- Atasay Kuyumculuk
- Japan Mint
- Kazzinc Ltd
- Met-Mex Peñoles SA
- MMTC-PAMP India Pvt Ltd
- Nadir Metal Rafineri San. Ve Tic. A.S
- PX Précinox SA
- Umicore Brasil Ltd

2012 Refiner RGG Audit Reports

2012 was the first year in which it was mandatory for refiners to implement the RGG and submit to the LBMA an independent third-party audit report. At the end of 2013, the LBMA received an overwhelming number of audit reports for the financial year 2012 and by March 2014, most of the 2012 refiners' audit reports had been submitted.

As per the RGG, all refiners have three months from the end of their financial year to submit the independent audit report to the LBMA. However, for 2012 only, in order to assist refiners to go through the process for the very first time, the LBMA extended the three-month deadline and provided all Good Delivery gold refiners with a 12-month extension following their 2012 financial year end. While low level instances of non-compliance were identified, on the whole, the Good Delivery List received positive reviews from the auditors.

2013 Refiner RGG Audit Reports

The LBMA, over the course of the last few months, has been receiving the 2013 independent audit reports from refiners whose financial year ended in December 2013 and who therefore had to submit their reports by March 2014. The two key issues to note for the 2013 audits are that all refiners:

- must comply with the deadline of submitting their reports within three months of the end of their 2013 financial year; and
- should use a Recommended Service Provider to carry out the audit.

Through mutual recognition of other industry initiatives, the LBMA also recognises that refiners have achieved compliance with the Responsible Gold Guidance by achieving either the Responsible Jewellery Council's Chain-of-Custody certification or Electronics Industry Citizenship Coalition (EICC) CFSI audit protocol.

RGG – Summary

The RGG extends the OECD Gold Supplement for Refiners and builds on existing Anti-Money Laundering and Know Your Customer management systems and auditing practices. It also makes what is a voluntary system (the OECD Guidance) mandatory for all LBMA Good Delivery gold refiners wishing to be accredited for the London Bullion Market. This framework is intended to assure investors and consumers that all London gold stocks are conflict-free due to compliance with an audited, conflict-free process. The Guidance however, goes beyond conflict and also addresses other responsible sourcing issues such as money laundering and terrorist financing.

ICGLR-OECD-UN GoE Joint Forum on Responsible Mineral Supply Chains

The LBMA recently acted as a Vice Chair for the OECD meeting on Responsible Mineral Supply Chains which took place in Paris, during 26-28 May. The LBMA's Responsible Gold Programme continues to be well received by the multi-stakeholder process which includes governments, ngos and industry. Many thanks to the members and refiners who took part and ensured that the LBMA's work regarding Responsible Gold continues to provide leadership to those looking to implement the OECD Due Diligence Guidance for gold.

LBMA Refiner's Toolkit

At the meeting, the LBMA launched the consultation of its draft Refiners Toolkit, which contains tailored gold supplier checklists, questionnaires and assessment forms to assist refiners conducting due diligence for both mined and recycled gold. These are intended to promote due diligence consistency for all LBMA gold refiners and to assist auditors in assessing how refiners are meeting LBMA requirements. The toolkit is the result of a year of work from three of the LBMA's referees: Argor-Hereaus, Metalor and PAMP. Many thanks to the three refiners for their willingness to share their expertise in order to assist the efforts of the gold industry to meet and exceed OECD and international regulatory compliance.

DIARY OF EVENTS 2014

JUNE

24-25
LBMA Bullion Market Forum
Singapore
Marina Bay Sands Hotel, Singapore
www.lbma.org.uk

JULY

11
LBMA AGM
Glaziers Hall, London
events@lbma.org.uk

AUGUST

4-6
Diggers & Dealers Forum 2014
Kalgoorlie, Australia
www.diggersndealers.com.au/

11-14
XII International Platinum Symposium
Yekatennburg, Urals
Russia
http://conf.uran.ru

SEPTEMBER

10-12
China Gold Congress & Expo 2014
Beijing, China
www.china-gold.org/en

10-12
Precious Metals Summit
Park Hyatt Beaver Creek
Colorado, USA
www.precioussummit.com

12-14
11th International Gold Convention 2014
JW Marriott, Pune, India

14-17
Denver Gold Forum 2014
Hyatt Agency, Denver, CO, USA
www.denvergold.org/gold-forums/

17
CME Group Precious Metals Dinner
New York, NY
www.cmegroup.com/metals

18
IPMI's 2nd NY Platinum Dinner
New York Palace Hotel, New York
www.ipmi.org/

18
LPPM/LBMA Cocktail Reception
New York Palace Hotel, New York
admin@lppm.com

22
International Mining Conference
Melbourne, Australia
www.imarcmelbourne.com

OCTOBER

20-23
LME Week
London, UK
www.lme.com/lmeweek.asp

20-23
China Mining Congress & Expo
Tianjin Meijiang Convention & Exhibition Center
Xiqing District, China
www.chinaminingtj.org/en/

NOVEMBER

4-5
Europe Precious Metals Summit
Switzerland
www.precioussummit.com

9-11
LBMA Precious Metals Conference 2014
Westin Lima Hotel & Convention Centre, Lima, Peru
www.lbma.org.uk

DECEMBER

1
LBMA Biennial Dinner
Guildhall, London
www.lbma.org.uk

PRECIOUS METALS MANAGEMENT

Usa • Türkiye • Spain • Germany • Dubai

IGR is the largest and the fastest growing precious metals refinery in Turkey and continues to work towards being one of the best and most reputable refineries in the precious metals industry worldwide.

IGR provides rapid settlements, accurate assays and fast payment to the world's leading mining companies.

IGR has a ISO 14001 certification for its commitment to national environmental protection and its laboratory is accredited according to ISO 17025.

LBMA
GOOD DELIVERY REFINER

ISTANBUL GOLD REFINERY
igr.com.tr igrglobal.com

ISTANBUL GOLD REFINERY IGR MELTER & ASSAYER

LBMA News

By Ruth Crowell, Chief Executive, LBMA

MEMBERSHIP

Members
On 31 December, Phibro Ltd resigned as an Ordinary Member. On 21 January, Natixis Commodity Markets Ltd resigned as an Affiliate Member.

On 2 May, G4S Cash Solutions UK Ltd was admitted as an Affiliate Member.

Associates
On 26 March, International Depository Services of Delaware and International Depository Services of Canada were both admitted as Associates.
These changes brought the membership to 147 companies, comprising 76 Members (of which 11 are Market Makers) and 71 Associates.

GOOD DELIVERY LIST

On 22 April 2014, the gold refinery of Kennecott Utah Copper LLC of the United States was admitted to the Gold Good Delivery List. There are currently 69 refiners on the Gold Good Delivery List and 77 on the Silver Good Delivery List.

COMMITTEES

Management Committee
Following the announcement by the London Silver Fixing Company Limited (SFCL) on the 14 May, that it will cease to administer the London Silver Fixing with effect from close of business on 14 August, the Management Committee has been helping the Executive in considering the most suitable way forward to assist market participants and ensure that the London Silver Market continues to serve efficiently the needs of market users around the world. On the 16 May, the LBMA launched it's online survey in order to take into account the views of as many market participants as possible. The Committee will be monitoring closely with other sub-Committees and the LBMA Market Makers to take forward the consultation process and subsequent streams of work.

Prior to the SFCL announcement, the Management Committee had been considering the best way forward for the LBMA's involvement in forward benchmarks, in particular GOFO which the LBMA has acted as an administrator since its creation. It has been preparing in order to ensure IOSCO compliance and was considering the possibility of outsourcing the administration of the GOFO benchmark to an independent third party. This experience and existing relationship with third-parties greatly assisted the LBMA in the recent Silver Price consultation. The Committee is also reviewing the work of the sub-committees below and helping finalise the programmes for the Bullion Market Forum in Singapore on 25 June and the conference in Lima, Peru on 9-11 November.

Regulatory Affairs Committee
The Regulatory Affairs Committee has also advised the Management Committee and Market Makers during the recent Silver Price consultation as well as a review of GOFO as outlined above. The Committee has also been focused on benchmark regulation with regard to GOFO and the end-of day Forward Curves. With the assistance of the RAC, the LBMA sent a letter in April to the Basel Banking Committee in response to the proposed Net Stable Funding Ratio Consultation. The LBMA highlighted that applying the same Required Stable Funding (RSF) factor of 85% to all commodities was an over-simplification and that the Committee should take into account the unique attributes of gold, which is a highly liquid commodity (and more akin to cash) and the run-to asset in periods of stress. The LBMA stressed that such a high RSF would have a detrimental impact on market liquidity and the gold market, including central bank activity. Similar letters were sent from other industry bodies including the World Gold Council. The RAC is working with these bodies and other members to help produce a liquidity impact analysis for all precious metals following Basel III implementation. The other main area of focus for the RAC has been the Responsible Gold Guidance. For further information, please see the Regulation Update on page 26.

Physical Committee
The Committee continues to monitor a record number of applications for Good Delivery accreditation. Excluding the newly accredited gold refinery of Kennecott mentioned above, the Executive is processing five gold applications and seven silver applications from refiners in seven different countries. In the past 12 months, 10 refiners (six silver and four gold) have been accredited and a similar number are thought to be preparing applications for submission in the next 12 months. Recent meetings of the Physical Committee have covered a much wider spectrum of issues than in the past. These include the Basel Committee's consultation on the net stable funding ratio in relation to gold held by banks. Another topic has been the data relating to the impact of precious metals on the UK's balance of payments position, which is supplied to the Bank of England by a number of LBMA member companies. A number of issues arising from proactive monitoring of refiners on the list have also been discussed. These primarily relate to changes in refiners' tangible net worth or refined production. Refiners that do not meet the LBMA requirements for these measures must explain the reasons for this and also indicate the actions proposed to bring them up to the minimum levels. Two very interesting numbers arising from this work are the figures for total refined production represented by the accredited refiners. Although it takes time to complete this data collection, the figures for 2011 are now complete. The total for gold is 4,695.8 tonnes and for silver is 28,395.5 tonnes, in both cases significantly above the respective world mine production of 2,838.1 tonnes and 23,545 tonnes. A number of questions about bar quality have also been discussed and where necessary, the Executive has taken action to ensure that the quality of future production meets the Good Delivery standard. There are a number of responsible gold issues (affecting both current gold applications and existing refiners) that the Committee has been keeping under review. The Committee has also followed with interest the discussions and proposals on conflict minerals stemming from the European Commission. See the Regulation Update on page 26. Part of the Committee's remit is responsibility for the Approved Weigher system and it has recently approved a more formal approach for evaluating the results of the weighing test, which applicants for this status must undergo. The Committee has also agreed that to cover the Executive's costs in processing such applications, there will in future be an application fee of £2,000.

Finally, the Committee noted the completion of the AuRM3 Reference Material Project (see the article on page 25).

Public Affairs Committee
The PAC has been concentrating on preparations for the annual conference, which this year will be held at the Westin Lima Hotel & Convention Centre in Lima, Peru on 9-11 November, 2014. The programme for the conference is currently being finalised and will be announced shortly.

The Committee is also assisting with the preparations for a Bullion Market Forum, which is to be held at the Marina Bay Sands Hotel in Singapore on 25 June, 2014. The purpose of the forum is to encourage the development of the Singapore bullion market. Similar forums have been held in the past in Moscow, New Delhi and Shanghai to focus primarily on local bullion market issues. Over 200 delegates have already registered and a new Indian Gold Market Session has been announced.

Please see the LBMA's website for further details.

The Committee has also agreed to again hold a joint cocktail reception with the LPPM on 18 September, in New York, for members and invited guests. This will be along similar lines to the one held in New York last year.

Finance Committee
The Finance Committee has been focusing on the 2013 audit and financial statements. Kingston Smith, the LBMA's external auditors, were highly satisfied with the standard of the 2013 accounts and no issues of concern were

reported. The Audited Financial Statements for 2013 have now been signed off by the Executive..

Annual General Meeting
The Annual General Meeting of the LBMA will take place in Glaziers Hall, 9 Montague Close, London Bridge on Friday, 11 July at 16:30. This is an ideal opportunity for any staff in Member and Associate companies to hear about what the LBMA has been doing and to meet representatives of other member companies. This year it will be the turn of the four Ordinary member representatives to be elected (or re-elected). In line with the usual procedures, the documentation, including nomination forms for the Management Committee election, will be circulated to the main LBMA contact in each member company in advance of the meeting. The AGM will, as usual, be followed by an informal drinks reception at 17:30.

Obituary

By Robert Stein

George Pajak, 2 September 1951 - 16 April 2014
It is with great regret that we announce the untimely death of George Pajak on 16 April. After graduating in International Relations with a 1st at University College London in 1974 George went into the City and embarked on a 20 year career in commodities. He started life at Tennant Trading learning about the world of base metals and rare metals before joining Derby and Co in 1978 where he joined the late Guy Field in a start up Bullion operation quite something in the days of the monopolistic 5 gold fixing members. I first met him in 1979 when I joined Derby, which had by then become the 6th member of the London Bullion market and it was clear that we would not only become colleagues but also good friends. George had a very good brain and liked to philosophise. His sense of humour was first class and he was extremely generous to both colleagues and his family. whom he frequently assisted. After leaving Derby a Phibro Salomon subsidiary in those days he spent the rest of his career at Credit Suisse, Dresdner and finally Engelhard ironically being the former parent of the Derby/Phibro empire. After leaving Engelhard, George had a short spell working for an ex Derby colleague trading garlic, peanuts, and other more exotic commodities. He thoroughly enjoyed this period of his career but decided that he wanted to return to Student life and finished his Masters in Contemporary Eastern European studies at the School of Slavonic Studies (University of London) in 1997. Over this 25 year period George had become a very shrewd property investor acquiring properties in the Kensington/Earls Court area and after his period in the world of academia he spent most of his time maintaining this portfolio. George's death at such an early age is tragic because we have lost a very good friend and our sympathies go out to his long time partner Grazyna and step children Anselm and Charlotta.

Market Moves

Tony Evanson joins Brinks Global Services
Tony Evanson joined Brink's Global Services in March 2014 as Director of Vaulting.

He has been actively involved in the market since 1984, most recently with Barclays and was a member of the LBMA's Physical Committee from March 2010 until recently. He currently chairs meetings of the Vault Managers.

Nicholas Frappell joins Mitsui & Co. Precious Metals Inc.
Nicholas Frappell moves to Mitsui & Co. Precious Metals Inc. in Hong Kong. After three years covering EMEA precious sales for MPM in London, he joins the Hong Kong office to expand the precious metals business in Australia, ASEAN and the Near East.

Amaryllis Gryllaki joins the Toronto-Dominion Bank
Amaryllis Gryllaki joins the Toronto-Dominion Bank Global Metals desk in New York in the role of Metals Sales Associate. She spent 6 years at Deutsche Bank, most recently in the role of Commodity Sales Associate, where she cross sold commodity products including energy and natural gas, base and precious metals, agricultural, softs and dry bulks. She will play an important role in the expansion of T-D's North American regional base and precious metals business.

Tom Hungerford joins Heraeus Metals New York
Tom Hungerford has joined the Precious Metal trading desk at Heraeus Metals New York.

He will focus on PGMs, and brings with him seven years of sales, marketing and trading experience in the Precious Metals industry. He originally joined Heraeus in May of 2012 from Johnson Matthey where he began his career as a precious metal trader in 2007.

Harau Kutani, Mitsubishi Materials Corporation
Harau Kutani moved from General Manager, Precious Metals Division to Base Metals on the 1 May. Mr Koji Matsuda takes over Harau Kutani's previous role.

Changes at Umicore Group
Ralf Drieselmann, SVP Precious Metals Management of Umicore Group and Peter Meixner, PGM trader of Umicore in Hanau, Germany, will both retire in early June 2014. They will be replaced by two long standing employees of Umicore based in Hanau, Germany, with Ralf being succeeded by Dr Bernhard Fuchs and Peter by Oliver Stoehr.

Every Cloud has a Silver Lining

Editorial Comment by Jonathan Spall, G Cubed Metals Ltd.

A quick glance at the LBMA's website reveals that its "most important core activity" is the maintenance of the Good Delivery List. Obviously the Association is also responsible for the industry's most prestigious conference and generally representing the London market for gold and silver. In my editorial I will be updating readers on these topics but there is little doubt that while these issues are all of vital importance to the future of a strong global market in precious metals there is one story that is dominating the newswires and it is with this that I propose to begin my piece.

In January, Deutsche Bank announced that it was selling its seats in the gold and silver fixings. Following which, on 29th April, the bank declared that it would no longer participate in setting the benchmarks and was withdrawing from the gold fixing immediately. Understandably it was considered that a benchmark for gold could be determined effectively with four participants, as has taken place previously, but it was not felt appropriate to continue with just two banks in silver. Consequently, Deutsche Bank deferred its decision in silver for 3 months and will continue until 14th August.

There are many people who believe that the LBMA historically oversees these market benchmarks. Unfortunately, this is an all too common misconception. However, it is organisations that are totally independent of the LBMA that are responsible for the fixings in each metal. The LBMA's involvement in the current consultation process is working with its members and other stakeholders to determine a reference price setting mechanism that is suitable for all parties. To be clear, the LBMA is acting as a conduit and facilitator but not as a decision maker. On 14th May, Ruth Crowell, Chief Executive, asserted "The LBMA will work with market participants, regulators and potential administrators to ensure the London Silver Market continues to serve efficiently the needs of market users around the world. As part of the consultation process, the LBMA will be actively approaching market participants requesting feedback."

> *"The LBMA already works closely with both Thomson Reuters, to administer the GOFO benchmark, as well as with the LME in administering the end of Day Forward curves for gold and silver."*

The survey which commenced two days later, and ran until 30th May, elicited 440 responses, the majority of which favoured an electronic, auction-based solution which provides a daily silver price for the London OTC market. Furthermore it was strongly felt that the mechanism needs to be tradable and with an increased number of direct participants. Following this Ruth requested that organisations that had indicated interest in becoming administrators for the silver price benchmark should submit proposals. By the deadline of 13th June there had been ten separate submissions to the LBMA to take over this role. It is clear that the market recognises the importance of having an acceptable industry reference rate that can be in place within the required timeframe to minimise the potential for market disruption. There may well still need to be adjustment of some contracts that cite the current mechanism but which mature after 14th August 2014. Perhaps the only certainty is that the word "fixing" will no longer be in use after this date – a term that was considered appropriate at the dawn of the 20th century but after applying 21st century linguistics has unwelcome connotations.

> *"As markets face greater scrutiny and there is a desire for more transparency we will see other challenges confront all traded instruments and the commodity markets are certainly not immune from this."*

Each of the suggested solutions is to be considered at a forum for LBMA members on 20th June. It is likely that this meeting will be conducted as a series of discussions between interested parties with no formal vote being held but instead with a consensus emerging.

The LBMA already works closely with both Thomson Reuters, to administer the GOFO benchmark, as well as with the LME in administering the end of Day Forward curves for gold and silver. Whilst the LBMA has experience with benchmarks the discussions regarding the silver price have been taking up an enormous amount of the Executive's time. As markets face greater scrutiny and there is a desire for more transparency we will see other challenges confront all traded instruments and the commodity markets are certainly not immune from this. Hence, the LBMA may increasingly see its role expand into providing the forum for which participants and stakeholders are able to debate the issues key to the ongoing integrity and health of global precious metal markets.

Since the last update, the Association has also been active in its more traditional roles. Work continues with Responsible Gold issues, you can read about the latest developments in the Regulation Update on page 26. Most notably the Executive is processing five gold applications and seven for silver from companies applying for accreditation to the Good Delivery List. This is in addition to the six silver and four gold refiners that joined the List over the last twelve months. This brings to 70 and 77 the number of refiners that have met the exacting standards required for acceptance to the gold and silver Lists respectively. While all new entrants should be congratulated on their achievement it is particularly gratifying that MMTC-PAMP India Pvt met the exhaustive test procedures and became the first Indian refiner to achieve London Good Delivery status for gold.

Many LBMA members will be participating in important forthcoming market events. First the LBMA Bullion Market Forum that takes place in Singapore on 25th June. This is followed by the year's key event, the Annual LBMA Precious Metals Conference that is being held in South America for the first time. The agenda for Lima is being finalised but it will follow the well-tested format of top quality speakers discussing events of interest and concern to market participants; a successful formula that has led to its undisputed role of both being an event "by the industry, for the industry" as well as the unmissable get-together of the precious metal community. Registration will open shortly but it is worth regularly checking for updates on the LBMA website.

I look forward to seeing you all in Peru from 9th to 11th November.

Jonathan Spall
After 30 years of working for some of the most prominent names in the precious metals market, including 9 years living in Asia/Pacific, Jon recently established his own consultancy company G Cubed Metals Ltd. His website, anticipated to be online in the near future, is www.gcubedmetals.com. He can be contacted on jon@gcubedmetals.com.

facing facts

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters, GFMS

Industrial Action In South Africa – Revisited

With South Africa's platinum strike now in its 16th week, combined lost employee salaries and company revenues running to over R25 billion and the situation regrettably degenerating to one of violence, it seems an appropriate time to review events and infer the market impact.

When we wrote about the precursor to these events in July 2013, it was suggested that that year might be marked as the 'calm before the storm', with unrest likely to swell late in the year. This timing was clearly out, with the Association of Mineworkers and Construction Union (AMCU) instead opting to align its then-dominant member base for a co-ordinated strike across the Western Limb operations of Amplats, Implats and Lonmin. This commenced on 23 January 2014 and has become the largest mining strike event in South Africa's history.

Reports began to emerge in May that, having foregone pay for the duration of the strike, mineworkers are deserting the AMCU and that the more established National Union of Mineworkers (NUM) and United Association of South Africa (UASA) are beginning to see member representation grow, with many workers' priority being an ability to return to work peacefully. Mineworkers have started to return but are doing so in the face of escalating intimidation and violence. The tone of the companies is also changing. Over recent months, producers have generally guided that the strike would not have an impact on medium-term mine planning. However, the unforeseen length of the strike and its impact on companies' cash positions is starting to drive a change of tack. World no. 3 producer, Lonmin, recently posted an interim operating loss of $131 million (from a $90 million profit in 2013) and highlighted that the focus is on restarting operations, but that restructuring is now likely and the extent of this will be determined by the date the mines are able to ramp up.

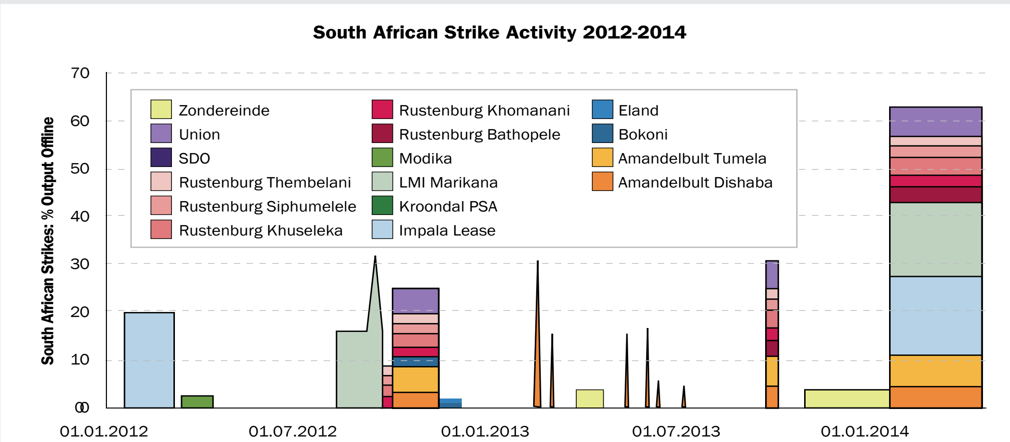
The chart highlights the episodes of strike disruption across the platinum industry from January 2012 to the time of writing, expressed as a percentage of production taken offline through strike action. As is evident, losses during 2013 were minor compared with 2012, but even those events have already been dwarfed by 2014's disruption. AMCU demanded a monthly minimum basic wage of R12,500 for an entry-level worker (representing a hike in the order of 150%), initially as a 'big bang' outcome, and then moderated this demand to an assurance of a minimum basic salary escalation to R12,500 per month over four years. Adding in allowances for housing, transportation, skills, plus safety bonus, among others, suggests a minimum cost to company of over R23,500 per month per employee. Conversely, producers' offers detail a 'line of sight' to total monthly cash remuneration (basic plus guaranteed ancillary cash components) escalating to R12,500 per month by 2017.

With the continuing strikes curtailing over 60% of the country's production capacity, we estimate that some 0.8 Moz of platinum production has been lost to-date. Even if a near-term resolution is found, we estimate that a further 0.35 Moz will be lost as the organisation and retraining of employees, underground 'safe-start' preparation and gradual ramp-up to capacity take place at the affected mines. The strike has led to the loss of R18 billion in revenue, equating to 0.5% of South Africa's annual GDP and will contribute to a physical deficit in the platinum market in the order of 1.0 Moz this year.

The most regrettable aspect of this unrest is that it will serve to accelerate what now seems an inevitable reduction of employment across the sector. The offers on the table from the producers will continue to drive rand-based cost escalation and necessitate higher metal prices or a retirement of loss-making mining assets, with widespread retrenchments. Demands by the AMCU are simply not viable for the majority of mines whose extraction is based on current 'conventional' labour-intensive mining configurations. These are common on the narrow, sometimes 'rolling' reef deposits on the Western Limb, whose ore production has been the mainstay of global platinum supply through much of the 20th century.

Ultimately, it seems likely that, over time, platinum ore will increasingly be mined using trackless equipment in bord and pillar configurations. It is hard to envisage conventionally configured projects gaining board approval in future. New projects not amenable to mechanisation from the outset stand a much higher likelihood of being passed over. Mechanisation is the norm on the wider Great Dyke reef in Zimbabwe and for much of the UG2 mining on the Eastern Limb, and this more skilled work requires extensive training and commands considerably higher salaries than is the case for entry-level conventional mineworkers. As such it would render the 'magic number' of a R12,500 per month basic salary a somewhat moot demand and partly explain the AMCU's lower representation rate at many mechanised mines. It should be noted that mining productivity is commonly three to four times higher and staffing levels concomitantly lower in mechanised mines.

As the economy continues to mature, this is clearly a positive direction in which to move. But progress in this area alone will not be without much broader challenges. A dearth of existing skills could mean that some of these jobs may need to be filled by expatriate labour. Such new developments may be welcomed by the government, but this will be a replacement, rather than expansion of capacity. Platinum mining currently employs close to 200,000 people in South Africa, and in a country where the official unemployment rate stands at around 25%, other aspects of the economy will need to be well positioned to take up the slack as this evolution plays out over the coming decade.



Source : GFMS, Thomson Reuters

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS

Having joined GFMS Ltd as a Metals Analyst in 2005 to cover the mining sector, William was brought across to Thomson Reuters in GFMS' 2011 acquisition and holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. He has accountability for the mining team's research output of global production, mining costs and producer hedging research across the precious metals.

This article was written on 14 May, 2014 prior to the announcement on 12 June regarding the possible end of strike action.

PAMP®

Produits Artistiques Metaux Precieux

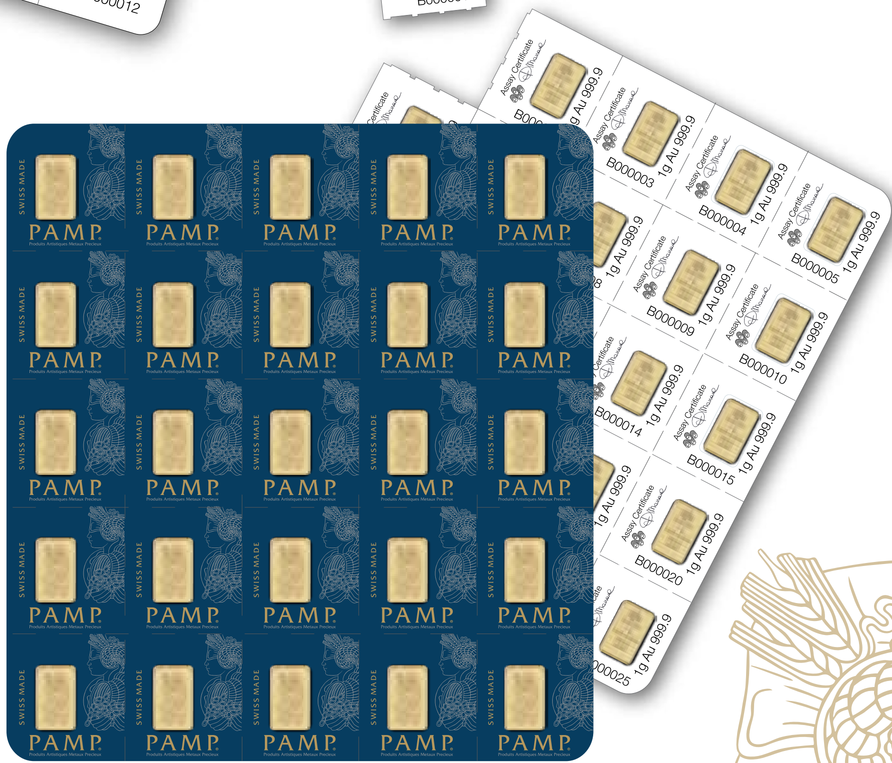
MULTIGRAM+12

For the bullion enthusiast.
Or to gift.

Exceptionally PAMP.

The latest in PAMP innovation has arrived, beginning with the MULTIGRAM+12 and MULTIGRAM+25 bullion sets. Each set's respective quantity of 1-gram Fortuna ingots is packaged within interconnected, securely sealed CertiPAMP units, which may be snapped off from the set while maintaining their unique certification, individual numbering and identity.

MULTIGRAM+25



The Art of Precious Metal Transformation®

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

LBMA

Alchemist

The London Bullion Market Association ISSUE 75 October 2014

In this issue

The LBMA's 15th Annual Precious Metals Conference takes place this year in Lima, Peru on 9-11 November, 2014. Read all about the conference in the Editorial by Dr Edel Tully on page 30.

LBMA

Save the Date and Call for Papers

The Sixth LBMA Assaying and Refining Conference

The Millennium Hotel,
Grosvenor Square, London
8 - 10 March, 2015

Since 2005 the LBMA has held this event every two years, initially solely for Good Delivery refiners but now other refiners and laboratories around the world may also participate. It is a unique opportunity for technical staff in the precious metals industry to meet and discuss the latest developments in refining and assaying of gold, silver and the PGMs. The 2013 conference was attended by 170 participants from 27 countries. To facilitate networking there will be a welcome reception on the evening of Sunday, 8 March.

Main Conference 9 - 10 March

Conference Themes

- Bar Quality
- Analysis
- Production

Invited Papers agreed so far include

- Proficiency Testing Programme
- Reference Materials
- Fire Assay Splitting Limits
- Use of Eddy Currents for Detecting Fake Bars
- Impact of Impurities on Precious Metal Properties
- Analysis of Gold by Microwave Plasma Atomic Emission Spectrometry
- Analysis of Gold by XRF Spectrometry

Additional Speakers

There are still a few vacant slots in the programme and the LBMA is willing to consider including relevant presentations to fill them. Anyone wishing to speak should send details of their proposed paper to **stewart.murray@LPMS.org.uk** as soon as possible.

Optional Events 11 March

On the morning of 11 March, a number of additional options are available including:

- A half day workshop on XRF Spectrometry hosted by Dr Mike Hinds of the Royal Canadian Mint
- A visit to the London Assay Office
- A visit to the Royal Institution (the home of science in London)
- A visit to the laboratories of Inspectorate International in Witham

Exhibitors and Sponsorship

Companies interested in hiring an exhibitor's booth or taking advantage of sponsorship opportunities should contact **collett.roberts@LBMA.org.uk**.

Details of the programme and information on registration and hotel accommodation will be included in the next edition of the Alchemist and will also be available via the LBMA website from early December.

Has the Gold Market Already Discounted Fed Tightening?

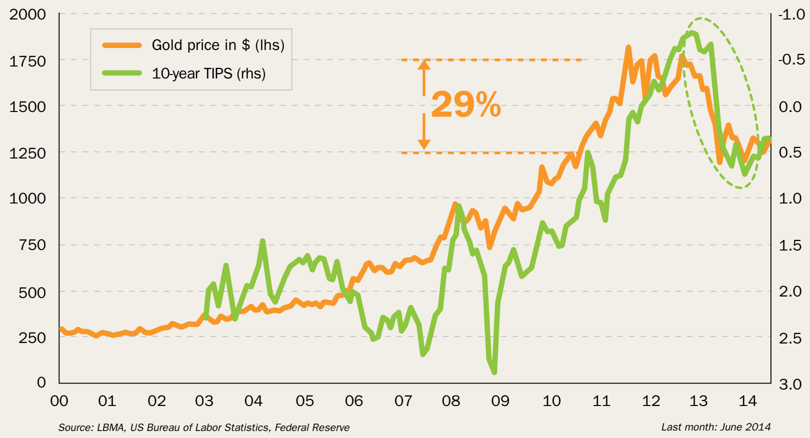
By Martin Murenbeeld, Chief Economist, Dundee Capital Markets

Martin Murenbeeld reviews the impact of US monetary policy on the global gold price and considers the extent to which the gold market, and the gold ETF market in particular, has discounted any likely hikes in US real interest rates and the US dollar in 2014-2015.

Gold in the vaults of the Federal Reserve Bank of New York. Reproduced here with the kind permission of the Fed.

Gold prices plunged in 2013 for a number of reasons, not least of which was the 'taper tantrum' where debt markets sold off around the world on fear of Fed policy tightening. Chart 1 highlights just what happened: gold prices declined quite precipitously in the first half of 2013 – right around the time the 10-year TIPS yield (US Treasury Inflation Protected Security) rose. (The TIPS scale is inverted.) US real long-term yields rose and gold declined; indeed, not many gold observers would disagree with the thesis that rising US real interest rates are negative for the gold price!

Chart 1: Gold and the 2013 "taper tantrum"



As it stands, Chart 1 would appear to explain everything that happened in 2013; the 'fit' is tight and the correlation of TIPS with the gold price is a very significant -0.87. Since most everyone agrees that US interest rates must inevitably rise, albeit no one knows just when and by how much, Chart 1 makes the point that gold prices must inevitably decline yet further.

I am bullish on the gold price, but this alone is not a sufficient reason to be critical of Chart 1 and its negative price implications. Take a look at Chart 2. It is the same chart but with one critical difference: the gold price level (i.e. $1,300 per ounce) has been replaced with the year-over-year percent change in the gold price!

Chart 2: Chart 1 now looks very different

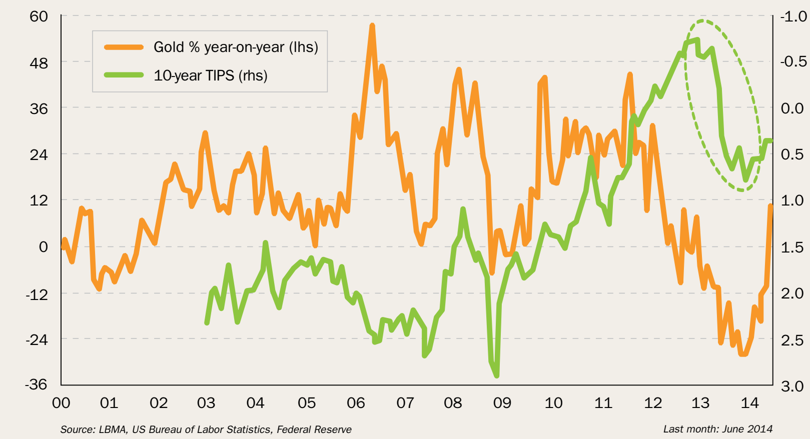


Chart 2 looks quite different; indeed, the high, negative correlation between TIPS and the gold price vanishes. The reader might also observe that the gold price actually turned before the TIPS yield rose.

So, which chart is right? Well, in the forecasting business, if a chart looks good, it tends to be used – right or wrong. And Chart 1 definitely looks good!

But there is a fundamental statistical problem with Chart 1: it compares a 'level' variable with a 'change' variable. (Statisticians call this a comparison of a non-stationary variable with a stationary variable; the latter has a stationary

mean, the former does not.) In Chart 2, both variables are 'change' variables and both are now 'stationary'. More important, Chart 2 suggests that Chart 1 might actually be overstating the strength of the relationship between US real interest rates and the price of gold!

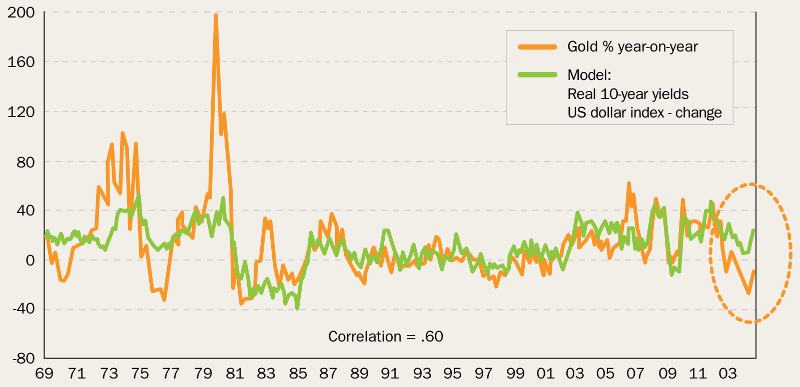
To help us unravel this relationship, we constructed a simple model of the year-on-year change in the gold price in terms of US real interest rates and the change in the US dollar. (We added a US dollar variable to the model because the dollar is one of the most important variables for the price of gold; the deletion of the dollar from a model that purports to estimate the impact of real interest rates on the change in the gold price will accordingly lead to a biased estimate.) All three variables in the model are stationary.

Chart 3 highlights this model estimated with data for the period 1969-2014 and Chart 4 highlights the same model estimated with data for the period 2000-2014. (We often change time periods in order to gauge the stability of the model's co-efficients.) Both models have a good fit, but they clearly do not explain all of the changes in the gold price over the respective time periods. Notably, the models do not explain very satisfactorily what happened in 2013; indeed, the percent decline in the gold price in 2013 is much larger than what the models suggested it should have been (note the circles on Charts 3 and 4).

With the help of these two models (and one other estimated with data for the period 1989-2014, the results of which are presented in Table 1), we can estimate just how much the gold price 'should' change on the back of a rise in US real interest rates and/or a rise in the US dollar. (By the way, the models do not use the US TIPS yield but a more common measure of real yields: the nominal 10-year Treasury yield less the current rate of inflation – see Table 1 and the box therewith for a further explanation of the variables.)

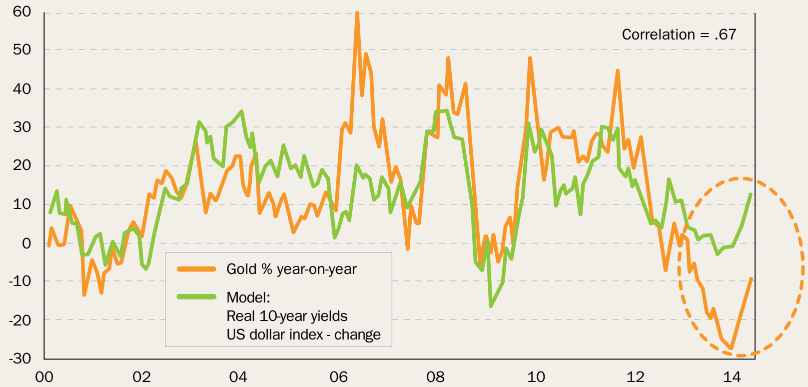
Let's assume that the real 10-year Treasury yield will rise 250 basis points in the coming year and that the US dollar index will rise 1,000 points. The nominal 10-year yield is currently about 2.5%, which, with inflation running at about 2.0%, puts the real yield at around 0.5%. A rise of 250 points would therefore take the real yield to 3.0% (the nominal 10-year yield would rise to 5.0% were inflation to remain at 2.0%). I don't think any readers expect such a significant rise in real long-term US yields. Furthermore, a

Chart 3: Model 1969-2014 – gold explained by real yields and changes in US dollar



Source: LBMA, Federal Reserve, Bureau of Labor Statistics, WSJ — Last month: May 2014

Chart 4: Model 2000-2014 – gold explained by real yields and changes in US dollar



Source: LBMA, Federal Reserve, Bureau of Labor Statistics, WSJ — Last month: May 2014

Table 1: Impact on gold of 100-point rise***

	Real interest rates*	In US dollar**
Model 1969-2014 *(R-squared = .362)*	-5.656%	-1.219%
Model 1989-2014 *(R-squared = .475)*	-3.839%	-1.235%
Model 2000-2014 *(R-squared = .454)*	-1.691%	-1.513%

*Difference between 10-year Treasury yields and consumer price inflation (y-o-y)
**Dollar index includes Cdn$, Yen, Pound, Euro (pre-1999: DM, Lira, FF)
*** A 100-point rise in real rates is 100 basis points
*** A 100-point rise in the US dollar is a rise in the index from, say, 75.00 to 76.00

The Table: The table presents the estimated impact of a 100 basis point rise in real interest rates and the impact of a 100 point rise in the US dollar index on the year-on-year percent change in the price of gold. One result stands out immediately: the estimated impact of changes in real interest rates on changes in the gold price has declined significantly as the estimation period is progressively shortened; the estimated impact of a 100-point rise in the real long-term yield is -5.7% for the 1969-2014 period, but only -1.7% for the shorter 2000-2014 period. The US dollar's impact on gold appears to be much more stable going from the longer to the shorter period. (We suspect that exceptionally high interest rate volatility in the 1980s may have something to do with these results; certainly once we deleted pre-1989 data from the estimation period, the estimated impact of real interest rates on the gold price declines significantly.)

The Variables: There are three variables in the models. The first is the year-on-year percent change in the month-end price of gold – US dollars per ounce. The second is a month-end real US interest rate. We tested a number, including an inflation-adjusted 90-day T-Bill yield and an inflation-adjusted 10-year Treasury yield – where the year-over-year US consumer price inflation rate is subtracted from the nominal 90-day and 10-year yields. The TIPS yield was also tested. The inflation adjusted 10-year Treasury yield was the best variable in our configuration – not the TIPS or other real interest rate formulations. The third variable is the year-on-year change in the month-end value of the US dollar index. We tested three different indices, but the dollar index that included only the Canadian dollar, the yen, the pound and the euro (the Deutschemark, French franc, and the Italian lira before 1999) proved to be the best index.

> *"We suggest that, on the evidence of the models, that gold has indeed discounted what the Fed is likely to do!"*

1,000-point rise in the dollar index would take the index from, say, 80.00 to 90.00, which is a substantial rise. (The DXY, a commonly used index for the US dollar, is around 81 currently. We use our own dollar indices however.)

Applying the most negative parameters of the three models, a -5.6% impact for a 100 point rise in real interest rates and a -1.5% impact for a 100 point rise in the dollar index, the foregoing assumptions lead to a change in the gold price over the next year in the order of -29% (-14% on account of the rise in real interest rates and -15% on account of the rise of the dollar).

But gold already declined 29% in 2013! Yes, the TIPS yield and other measures of US real interest rates did rise for a brief period in 2013, and the US dollar index also rose somewhat. But Charts 3 and 4 indicate that these developments weren't nearly sufficient to account for the 29% decline in the price of gold.

Of course, there were other factors that hurt the gold price in 2013, including: (1) EU demands that Cyprus sell its gold to help with the bailout; (2) a significant reduction in the risk of a eurozone break-up; and (3) the continuing surge in equity markets (which erodes investment interest in gold). These factors are not included in the model described above.

Nor does the model include a variable to specifically account for the massive gold ETF sales in 2013! The reader will recall that there was a tremendous concentration of selling from the ETF sector last year; indeed, such concentrated selling might even be regarded as 'herd selling', 'trend selling' or, dare we say it, 'panic selling'! In our opinion, ETF sales go a long way to explain the discrepancy between the models and the actual change in the gold price. Yet, all this raises a fundamental question: has the gold market – and the gold ETF market more specifically – now discounted fully any likely hikes in US real interest rates and any likely rises in the US dollar in 2014-2015?

We suggest that, on the evidence of the models, that gold has indeed discounted what the Fed is likely to do! A 'bear' might argue that the decline in the gold price from (roughly) $1,750 to $1,250 was a return to 'fundamentals' – that gold rose too much in 2010-2012 and had to come 'back down to earth'. Accordingly, the 'bear' would argue that there could well be a further 29% decline in the gold price were the draconian hikes in real interest rates and the US dollar assumed above to come about!

But the 'bear' would then also have to argue from which sector of the gold market the selling would originate. Presumably, the 'bear' would argue that it would be from the ETF sector again. But would those holders of ETFs who did not sell in 2013 finally decide to throw in the towel in 2014 and 2015? (Gold ETFs are much more widely held now that a few heavy hitters sold out their positions in 2013.) Or would the bear argue that Chinese demand will decline precipitously, despite the fact that the average Chinese buyer is not as attuned to US dollar and Fed policy developments as North American and European buyers appear to be. The point is, selling pressure has to come from somewhere, and/or demand has to plunge, in order that the 29% price decline estimated on the back of these assumptions is realised.

> *"No one can say with certainty just how the gold market – or other markets – will react when the time comes for the Fed to hike short-term interest rates."*

The proof of the pudding is in the eating, so we have to wait and see. No one can say with certainty just how the gold market – or other markets – will react when the time comes for the Fed to hike short-term interest rates. (And there are many other variables at play in the gold market – not least of which is the geopolitical variable.) However, Chart 1 does not suggest gold rose too much in 2010-2012; indeed, it suggests, because gold should have been even higher than $1,750 in 2012-2013, that $1,750 is was not necessarily 'too high' at all! Nor does Chart 4 (my preferred chart) suggest that the monthly year-on-year rises in the gold price before 2013 were excessive in the same manner that the monthly declines in 2013 were excessive. Assuming in other words that $1,700-$1,750 was indeed a fundamentally supportable price level for gold at the time, then the analysis suggests that the gold market is now ahead of the curve – that the gold market has already reacted to what the Fed may throw at the markets over the next 12 months.

Let me add further that the Fed's game plan is not to raise interest rates before inflation pressures re-emerge; indeed, it is very likely that real short-term interest rates will remain below zero for most of 2015. (This is also the conclusion one draws from analysing the famous FOMC 'dots'!) And if US real short-term rates do not rise significantly over the next 12 months, it is extremely difficult to expect US real long-term yields to rise by the amount assumed above, i.e. by 250 basis points.

As always, it will be an interesting time in the gold market going forward.

Martin Murenbeeld
Martin Murenbeeld is the Chief Economist of Dundee Capital Markets, a division of Dundee Securities, a Dundee company.

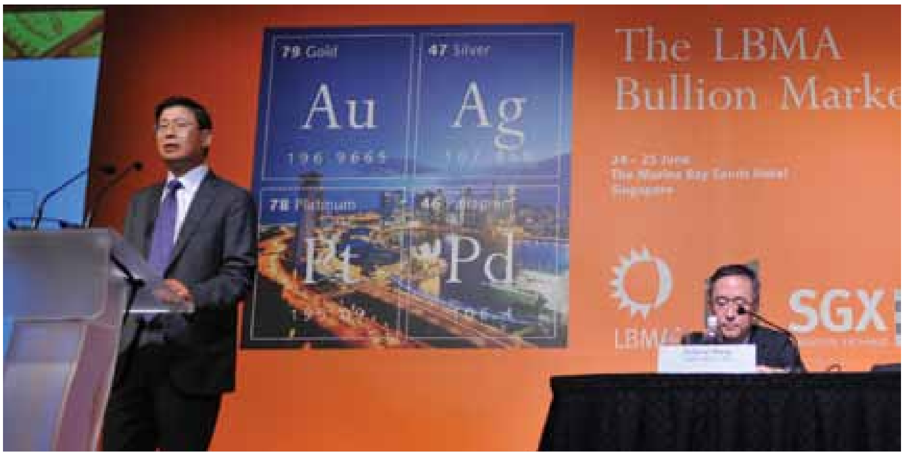
Dr Murenbeeld's group provides independent economic analysis and advice on economic and financial developments to financial advisors and portfolio managers across North America and abroad.

Dr Murenbeeld graduated from the University of California, Berkeley, in 1972 with a PhD in international finance. He then joined the Faculty of Management Studies at the University of Toronto to develop the international business curriculum in the MBA program, where he was a Faculty until 1978. Dr Murenbeeld started M. Murenbeeld & Associates Inc., an economic consultancy in the area of international finance. The company was bought by DundeeWealth Inc. in 2004 and he was Chief Economist of that firm until his departure in 2013 to join Dundee Capital Markets as its Chief Economist.

Frequently quoted in the financial press and a regular speaker at international precious metals and foreign exchange market conferences, Dr Murenbeeld has over 30 years of independent consulting experience in the gold, currency and credit markets and is currently also an adjunct professor (international finance) in the Faculty of Business at the University of Victoria.

The Development and Opening of China's Gold Market

By Xu Luode, Chairman, Shanghai Gold Exchange



This is a translation of a speech delivered by Xu Luode, Chairman of the Shanghai Gold Exchange, at the LBMA Bullion Market Forum in Singapore on 25 June, 2014.

Thank you for inviting me to attend the LBMA Singapore Forum. It's my great pleasure to be here. So now let me give you a brief introduction on our country's gold market.

First of all, let us all have a look at China's current gold production. For seven consecutive years, gold production in China has been the largest in the world, with nearly 430 tonnes produced last year. China has the second-largest gold reserves in the world. This is the latest figure. Before that, China had been ranked third.

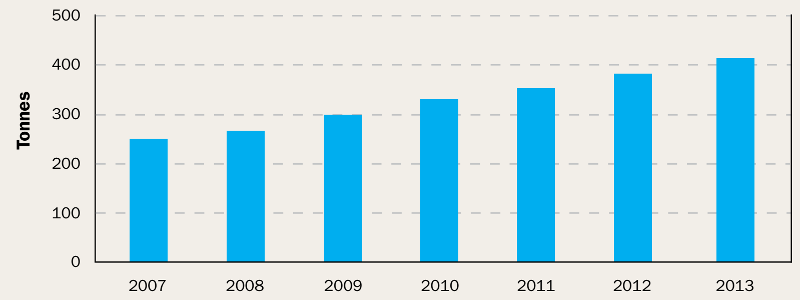
Next is our consumption of gold. According to the statistics compiled by Mr Zhang Bingnan, gold consumption reached 1,174 tonnes last year, and that is also the largest in the world. I slightly disagree with Mr Zhang, as I think we might have consumed even more than that. I think that it is always a good thing to have a higher figure, rather than a lower one. There are two factors supporting consumption in China's gold market. One of them is jewellery. China has an extremely high level of jewellery consumption. Such growth in jewellery consumption shows that China's level of consumption, as in gold consumption, is in a very healthy state. The other one would be gold bullion, as residents are now allocating gold to their asset allocation, and this volume is currently also high.

Next is imports. Data on China's gold imports has not previously been made available to the public. However, gold has historically been imported through Hong Kong, and Hong Kong is highly transparent, disclosing details such as the number of tonnes of gold imported on a monthly basis. Last year, China imported 1,540 tonnes of gold. Such imports, together with the 430 tonnes of gold we produced ourselves, means that we have, in effect, supplied approximately 2,000 tonnes of gold last year.

The 2,000 tonnes of gold were consumed by consumers in China. Of course, we all know that the Chinese 'dama' [middle-aged women] accounts for a significant proportion in purchasing gold. So last year, our gold exchange's inventory reduced by nearly 2,200 tonnes, of which 200 tonnes was recycled gold.

Seeing such a tremendous market in China last year, many of you are very concerned about what will happen not only this year but also in the future. In my opinion, there will certainly be some differences this year compared to last year. One factor is that the growth rate is

Chart 1: Gold production in China



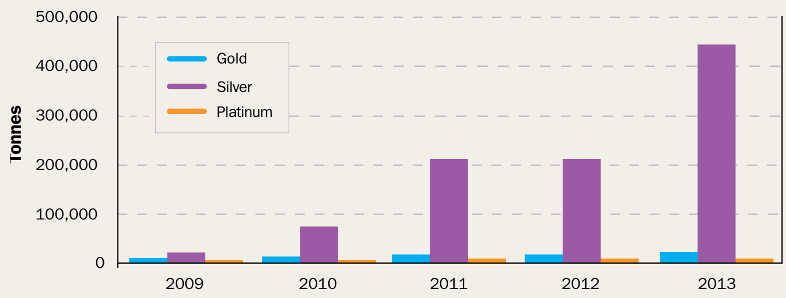
World Gold Production 2013 (tonnes)

Rank	Country/Region	Gold production
	World	2,770
1	China	428
2	Australia	255
3	United States	227
4	Russia	220
5	Peru	150
6	South Africa	145
7	Canada	120
8	Mexico	100
9	Uzbekistan	93
10	Ghana	85

slowing down. In the first quarter of this year, gold consumption was still increasing and the import volume remained steady. In terms of the general trend, Mr Albert Cheng from the World Gold Council has estimated that the per capita gold consumption is only 4.5 grams in China whereas it is as high as 24 grams worldwide. The difference of nearly 20 grams represents the potential growth of the physical gold market in China. So I think that China still has a significant growth potential.

Many of you are very concerned about the structure of the gold market in China at the moment. China is a country that is undergoing a significant degree of market transformation. China's gold market has only undergone 10 to 12 years of development, but has its own distinctive features. There are differences when compared with the gold markets of some of the developed countries and even with

Chart 2: Transaction volume of SGE's products



Transaction volumes (tonnes)

	Gold	Silver	Platinum
2009	4,711	16,248	57
2010	6,052	73,615	55
2011	7,439	247,058	65
2012	6,350	208,950	64
2013	11,614	430,501	90

Singapore's gold market. So I call it 'One Body with Two Wings', where 'One Body' refers to our Shanghai Gold Exchange, and 'Two Wings' refers to the sub-market of our commercial banks, as well as the sub-market of our futures exchange. Many of you asked if I have seen ourselves as being too important. Why are we One Body, while others are Two Wings? It is not that I have seen ourselves as too important. I have always held the opinion that any market must have physical commodities as the basis. Be it bulk commodities or other trading markets, transactions are based on physical commodities, and our gold exchange is one based on physical commodities. An exchange with no physical commodities as the basis may grow to a gigantic scale, but there will still be some restrictions when it comes to supporting the physical economy or wielding influence on other aspects of the market. Therefore, I think that as a market trading mainly physical commodities while also trading derivatives, our gold exchange should indeed be playing the role of a central hub in China's gold market. As for the current gold market of our commercial banks, Mr Zhou Ming will be providing an explanation later in his presentation. Our futures exchange is not represented here today, but I can tell all of you that China's futures exchange has also been doing very well in many aspects. Many of you here today are their members.

At the SGE, trading of physical commodities accounts for 35% of total transactions, and investment trading, or rather, derivatives trading accounts for 65% of the total transactions. I believe there will still be changes to this ratio in the future, as in the percentage of transactions accounted for by derivatives may increase further. In my opinion, the desired ratio should be something like 20%/80% or 10%/90%. As for our exchange, let me give a brief introduction to all of you as some of you are familiar while others are unfamiliar with it. The SGE was established in 2001 and officially commenced operations in 2002. Chart 2 shows the transaction volumes of the SGE's products since 2009. As at the end of last year, we have traded more than 11,000 tonnes of gold and 430,000 tonnes of silver. Despite relatively large fluctuations in gold prices this year, we have still managed to maintain a 17% growth in our gold trading volume compared to the corresponding period last year. So the momentum is still healthy. Besides, we have established a system for logistics, delivery and distribution, as well as a funds clearing system. It should indeed be said that the development outlook is still promising.

In terms of development opportunities for the entire gold market in China, I have mentioned earlier that there is a tremendous potential for our physical gold market. However, we think that our market as a whole is facing three critical opportunities. The first one is a critical period of strategic opportunities. The keynote speaker, Jeremy East, from Standard Charted, explained this point very well earlier today (Jeremy's speech is reproduced on page 10). He talked about the impact of China on the world economy, the global impact of RMB internationalisation and the global impact of China's gold market. China's economy is developing at a medium to high speed, with an annual growth rate of 7.5%. I think this level of growth is sustainable for many years to come. Therefore, such a rate is a significant factor supporting the development of China's gold market, as well as a fundamental factor supporting the flow of gold from West to East. So in this regard, China's gold market is currently still in a period of strategic development. The second one is a period of accelerated development. With China's investors becoming increasingly mature, participants in China steadily increasing in number and our products getting richer day by day, especially our continually enhanced innovation capabilities, our market is experiencing a period of accelerated comprehensive development. The third is an increasing international presence. Until recently, China's gold market was a closed market. Other than imports, China's gold is invested in by domestic investors and onshore funds. We think that China's gold market has reached a new phase of opening up. It is because the extent of China's economic openness is getting increasingly larger, and our RMB internationalisation is accelerating, especially when we have set up a free trade zone in Shanghai in which free conversion of RMB is possible. Another reason is that China's gold market has now developed to a reasonable size. That is why we think that the time has come for China to open up its gold market to the world.

As well, we should have an overall goal for the opening up of China's gold market. Just as

> *"China's economy is developing at a medium to high speed, with an annual growth rate of 7.5%. I think this level of growth is sustainable for many years to come."*

Singapore's Minister for Trade and Industry told us today that Singapore has an overall goal and overall plan for its gold market, China also has an overall goal for the opening up of our gold market to the world. First of all, we should leverage the opportunities presented by RMB internationalisation to open up China's gold market gradually to the world. Secondly, we have technically implemented such opening up through the establishment of our Shanghai Gold Exchange International Board. So how do we open up to the world? The international board will help to open the door and invite everyone into China's gold market. Thirdly, we find that we should have a target of serving global investors to create an influential international gold market in China. In other words, China should still have the opportunity to become a prominent gold market, and Shanghai should become a global centre for gold trading. I think we are rather confident about this. This is our goal. So has such a goal obtained the support of the Chinese government, or rather, the support of our regulatory authorities? I am very pleased to say that this is indeed the case. The international board has obtained approval from our central bank, the PBOC, and received support and made the relevant institutional arrangements. Many of you were very concerned about whether you can trade with US dollars or offshore RMB, and how to participate in trading. Let me tell you, we have now completed the design such that you can trade on the international gold board with your offshore RMB and offshore foreign currency through a free-trade account in the free trade zone. One week before I came here, we signed an agreement with the regulatory authorities for the use of free-trade accounts.

So what are the specific details of the design of our international gold board? I have thought for

a long time about how best to explain this clearly to all of you. It is, in fact, very simple. First of all, who are the participants, as in the ones who can participate in trading on our international board? Well, any foreign legal entity or any legal entity that will be established in the Shanghai Free Trade Zone is eligible to apply to become a member of our gold exchange. Of course, there will be many applications, and there will also be some criteria and qualifications for the admission of members. Similarly, there are strict requirements for those wanting to become members of the LBMA. There would still be some requirements in order to participate. We welcome anyone meeting these requirements to join us. Those who cannot meet our requirements can still participate in trading through any of our future international members who can act as brokers.

> *“Secondly, the transactions on our exchange are priced in RMB. I believe that such a design will enrich the international gold market and make it more credible.”*

Secondly, the transactions on our exchange are priced in RMB. I believe that such a design will enrich the international gold market and make it more credible. We have US dollar pricing. We have London gold pricing. And we can also have RMB pricing. Earlier, I have reported on the data that physical gold consumption in China's gold market has, in effect, reached more than 2,000 tonnes last year. All of you here are experts in this industry and are very clear about the percentage accounted for by these 2,000 tonnes of physical gold in the global market. So I think that RMB pricing should enhance the entire price mechanism. After fixing the price in RMB, you can participate in transactions on our international board with your offshore RMB or even offshore foreign currencies. These days, I often have friends asking me whether we have two boards, one called the international board, and the other called the domestic board. We have, in effect, only one board where domestic and foreign investors trade together with onshore and offshore funds based on a single price. So they are, in fact, together, not separate. If that is the case, what is the purpose of setting up the SGEI? It has three main responsibilities. The first one is to serve as an IT system interface enabling international members to trade on our main board. The second role is to implement the clearing of funds. I mentioned earlier that trading would be done through an FT account. Incoming offshore funds should still be subject to regulation, meaning that incoming funds can only be used to invest in the trading of products on our gold exchange. You cannot use these funds to do any other thing, such as to buy properties or stocks in China. So the account is needed for you to place your money in it. This account will be opened in the name of our SGEI. Therefore, it serves the role of the clearing and management of funds. And what is the third role? We have created the role of transhipment trade. Many international gold experts have mentioned that Shanghai could serve as a centre for the transhipment of gold. In other words, countries in Southeast Asia or certain parts of East Asia could import gold through Shanghai. So we have, in fact, adopted this suggestion. As such, we designed an important function on our international board for it to be equipped with the ability to conduct transhipment trade. This is an institutional arrangement. For the purpose of such an arrangement, we have set up a 1,500-tonne gold vault in the Shanghai Free Trade Zone. This can serve as a delivery store for both gold imported into China and transhipped to other destinations.

So what is the current status of preparations for the international board? As our market is now transforming from an entirely domestic market to an international market, some of our rules have been adapted. We are also soliciting opinions on this matter from some of our participants, and this is more or less completed. Secondly, the IT system has been built and is now technically online, with the capability to conduct transactions. What we are doing right now is to invite international members to become members of our exchange. Many of the banks, corporations and investment companies or funds that are present here today have established very good relations with us. I might also have sent our invitation to many of you. At this stage, we are only engaging in discussions. We would like to see all of them become members of our exchange, and their responses have been encouraging. They said that they would be very willing to participate in China's market and become a member of our exchange. We expect to launch this international board officially before the end of 2014.

Another thing I would like to elaborate on is that, as our international board is priced in RMB, there are many other opportunities involved. As we all know, there is a difference in interest rates between onshore and offshore RMB funds, or between onshore RMB funds and foreign-currencies. Furthermore, as transactions are quoted in RMB, you are, in effect, using RMB during settlement. So there is an exchange rate difference involved here. We all know that China's exchange rate has appreciated continually over the past few years. However, the RMB exchange rate is now fluctuating more flexibly in both directions, sometimes appreciating and sometimes depreciating. The degree of daily exchange rate fluctuations in China was 1%, but it has now relaxed to 2%. If the exchange rate fluctuates by 2% daily, I suppose this is not a small amount. In other words, investing in such a product from our gold exchange would involve gold price fluctuations, as well as interest rate and exchange rate fluctuations. Therefore, it is, in effect, a three-in-one product that provides investors with the potential for profit.

> *“We expect to launch this international board officially before the end of 2014.”*

I think China's gold market is developing very well. So I am very confident about the launch of our international board. I am also very optimistic about the development of our gold market as a whole. So I would like to take this opportunity to thank all of you for your support and welcome your participation in our market. Together with all of you, we will take our global gold market to greater heights! Thank you for listening.

Xu Luode, Chairman of the SGE

Mr Xu Luode, Bachelor of Economics and senior accountant, is the Chairman of Shanghai Gold Exchange. He is also the Vice Chairman of China Gold Association, the Vice Chairman of China Payment and Settlement Association, the Executive Member of China Society for Finance & Banking and the Executive Member of China Numismatic Society.

Before taking the current position, Mr Xu Luode served successively as the Deputy General Director of the General Office in People's Bank of China, the Director General of Payment and Settlement Department in People's Bank of China, and the President of China UnionPay.

Turkey's Bullion Bank
1st & only;
• Turkish bank with its brand on gold kilobars
• LBMA associate Turkish bank
Leader in;
• 2013 BIST* gold transactions
• Turkey's gold bullion foreign trade
Leading bank in;
• BIST gold transactions since 2011
• BIST silver transactions since 2008
Clearing Bank of BIST
*BIST: Borsa Istanbul Precious Metals & Diamond Market
KUVEYTTÜRK
1KILO
Gold
995.0
MELTER ASSAYER
Switzerland
Kuveyt Türk Participation Bank Inc. - Treasury
Adress: Büyükdere Caddesi No: 129-1 34394 Esentepe – Şişli, İstanbul / Turkey
Phone: +90 212 355 4090 • E-mail: treasury@kuveytturk.com.tr
Reuters & Bloomberg: KVTR
www.kuveytturk.com.tr
KUVEYTTÜRK
PARTICIPATION BANK INC.

Precious Metals International Context

By Jeremy East, Managing Director Global Head, Metals Trading, Standard Chartered Bank

The following article is the Keynote Speech delivered by Jeremy East at the LBMA Bullion Market Forum in Singapore on 25 June, 2014.

Introduction

Thank you very much, ladies, gentlemen, and Minister. I notice there is no session here called 'East goes east'. I have spent most of my career in London. A year ago, I moved to Hong Kong. The reason for moving out to Asia was really a reflection of what is going on in Asia and the development of Asian markets. One of the key reasons that we are here today is because of what is going on out in Asia.

Today, I am going to talk a bit about what is going on in the Asian markets. I will obviously talk a lot about China because it is now the largest market in gold. We will look at the price trends and the impact of Asia on those, and also at what is happening with the physical flows. Where is the gold going to?

Then, as I said, I will talk about China and what is actually going on in China. Why it is becoming much more important on the global stage and why is it trying to become more international with RMB internationalisation?

Finally, I will talk about how this is going to impact the London and New York markets.

Gold Price Drivers

Three years ago, there was another Jeremy here, Jeremy Charles. He was talking about the growth of the ETFs. Three years ago, the ETF was around 70 million ounces. Later that year, it grew to 85 million ounces. The ETF is one of the main developments in the gold market. At the same time, the gold price rose up to $1,900 per ounce, a key driver was the growth of the expansion of ETF holdings. We all know what happened in the following few years, and if you look at the gold price, clearly the liquidation of the ETF was a main driver of that move down too.

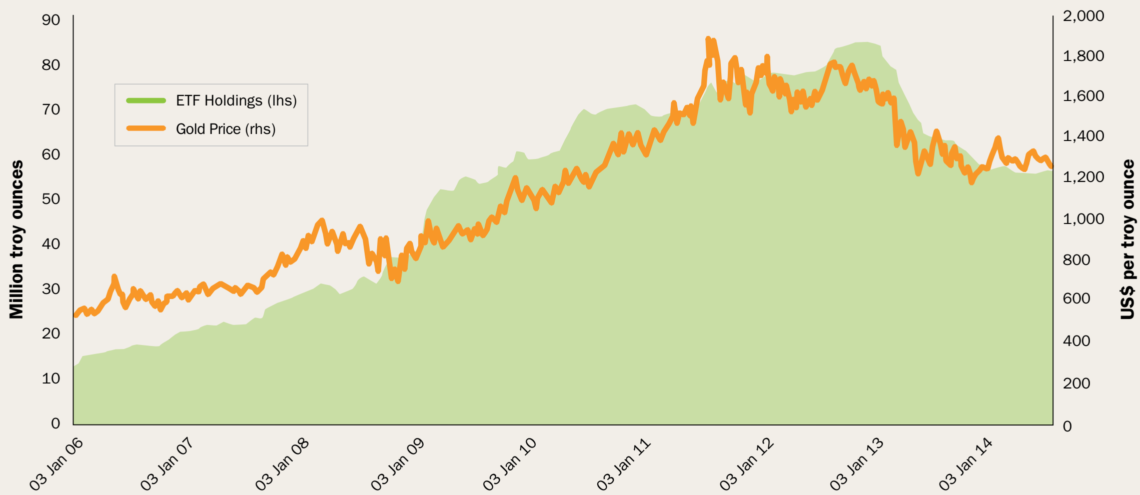
If you look at the key drivers from our colleagues at Goldfield GFMS, they talk about import duties in India, ETFs, quantitative easing, Western budget deficits and US interest rates. These are all the things that we frequently talk about as influencing the gold price. However, there is no mention of the biggest player in the market. There is no mention of China. I think things are changing.

The China Effect

Let us look at this year. When we started this year, everyone was bearish and gold was around $1,200. In the run up to the Chinese New Year, the premium in Shanghai spiked to $1,500. There was a huge flow of physical gold in to China in the first four weeks of the year. Very soon after that, instead of moving lower as everyone expected, the gold price rallied strongly on the back of the demand from China and it moved up to close to $1,400 at $1,390. What happened at that point? I can tell you what happened. The PBOC allowed the Chinese currency to weaken. It had a massive impact on the gold market. Very few people have been talking about it. Within a few days, the premium on the gold exchange had actually turned to a discount. The Chinese demand for gold dried up and within the next two weeks gold dropped $100.

It is important that we now start to see and understand what is going on in China, because it is having an impact on the international prices. Recently, we have seen the gold price bounce back. It came down to around $1,250 and then back up to $1,300. At $1,250, the PBOC allowed the fixing to get slightly stronger in China, and so we suddenly saw a little bit more confidence coming in to the Chinese market, with people more confident in terms of what was going on with their currency and a bit more confident in terms of what they could do with gold. Whether it is a coincidence or not, I think it is important to realise that this is starting to be a major driver.

Chart 1: Total known ETF Gold Holdings and the Gold Price



Source: Bloomberg

Flows of Physical Gold from West to East

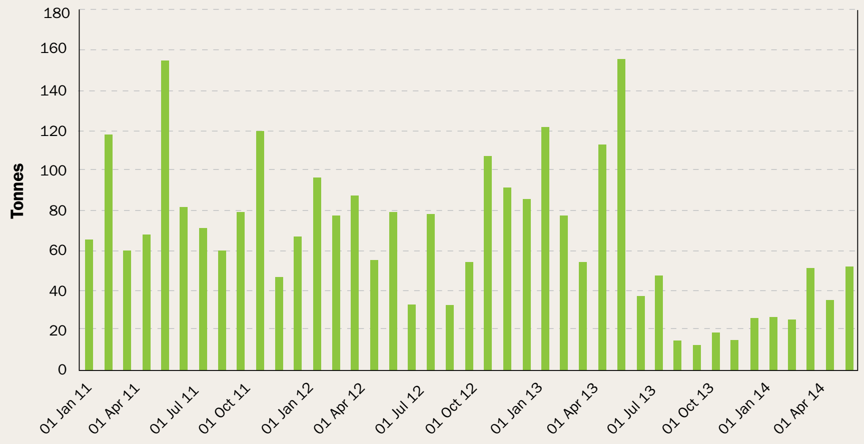
I will now have a look at the physical flows. The ETF built up a stock of around 85 million ounces, but it took many years – a decade or so – to get there. Within one year, approximately 30 million ounces were liquidated, so there was a huge amount of selling. It was not just ETF selling, it was also physical, so there were people with physical holdings liquidating as well. As we saw with the gold price from last year, there was huge selling from investors but also huge selling from people who had held gold as a safe haven, so there was a huge amount of physical selling.

So, where did the gold go?

At least part of it went to India. In the first four months of the year, India imported a huge amount of gold and, thereafter, basically nothing. The imposition of higher import duties and the new 80:20 rule meant that Indian imports were really nothing after May. By September 2013, imports were at their lowest level for 10 years. So, where did the gold go?

Just a few more comments about India: obviously one of the reasons driving India is the current account deficit. I am sure my colleagues will go in to this in more detail this afternoon. Gold was one of the top imported commodities for India. There was a real focus on gold in terms of saying if we can reduce the amount of gold going in to the country that will improve the current account deficit. If you look back to Q4 2012, the current account deficit was almost $32 billion. The government decided to control that and, soon after, as we see in terms of the data, this had an impact, firstly on the gold import volumes and then in the trade data. We saw the current account deficit come down dramatically. In fact, if you look at the first quarter of 2014, it is down to just over $1 billion. Our understanding is that India now believes it is comfortable with a current account deficit which is about 2.5% of its GDP, and current levels are presently below that, at around 1.7%. The expectation is we will start seeing more relaxing of duties or perhaps of the 80:20 rule by the government. I think it is important to understand that potentially the Indian numbers may have overshot on the downside and this may have an impact on the gold market later in the year.

Chart 2: India Gold imports



Source: Standard Chartered Research

China really bought gold last year and it also continued to into this year. My numbers are estimates rather than the exact numbers, but it gives you an idea of what is going on. In the last few years, China has probably imported more than 3,500 tonnes of gold. Last year, it was probably around 1,400 tonnes. You also need to add on 400 tonnes of domestic production, so China is now by far the largest gold market in the world, consuming probably around a third of all gold produced. It has overtaken India; it is now the largest driver in the physical market.

I will say a few words about the physical flows. Obviously, we saw the ETF selling and we have also seen physical selling of gold in the west. The ETF gold selling is 400 ounce loco London bars in vault. These gold bars did not find their way back to London. The majority of this gold found its way out to Asia. The large bars were converted through the Swiss gold refineries and other refineries, and shipped out to Asia and supplied largely to the Chinese market. There were huge logistical challenges last year, such as taking metal out of storage that had been there for many years. The refineries struggled with the volume, in terms of being able to convert the gold into kilo bars for the Asia market, and we saw an unprecedented squeeze on the premiums for physical gold.

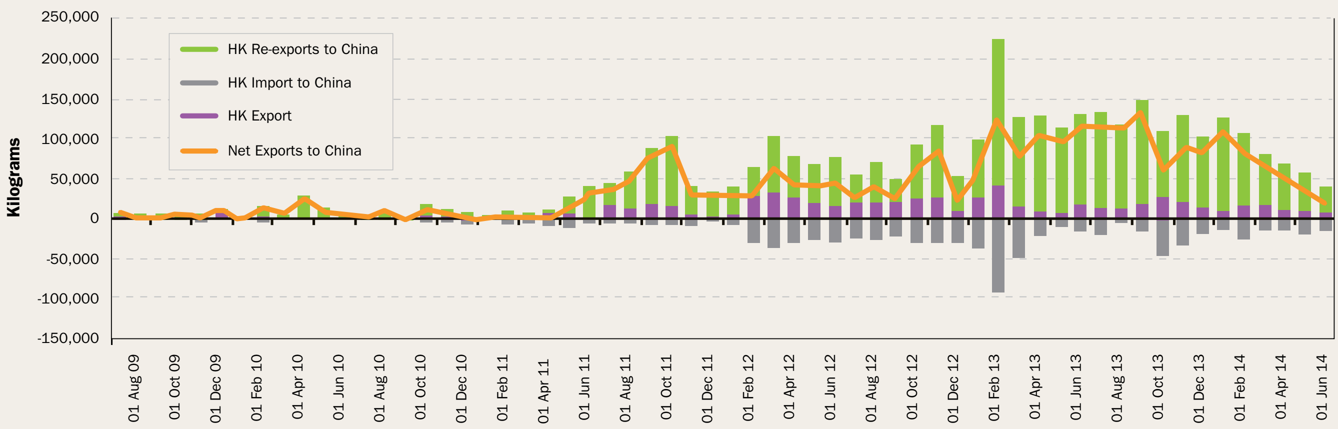
Now, we are actually seeing quite an interesting situation. The Chinese market is still taking gold. This year, we have seen the ETF stabilising and there is no real selling of the ETF. The current level of scrap supplied to the market is low and probably close to non-existent. We are now seeing a growth in supply coming from producers going directly to the Chinese market. We are seeing gold flows circumventing the London market when, historically, gold would typically find its way to London and then out again. So we are seeing a bypass of the London market and, in fact, in times of strong demand from Asia, gold is being drawn out of the London market. From time to time, there is tightness in liquidity and I think this is a trend it is worth keeping an eye on.

Why are the Chinese Buying?

So what is going on in China? Why are the Chinese buying? It only seems to have been happening over the last few years. What is going on?

1. China's Gold Friendly Strategy
I was at the Shanghai Derivatives Forum at the end of May and one of the speakers was a

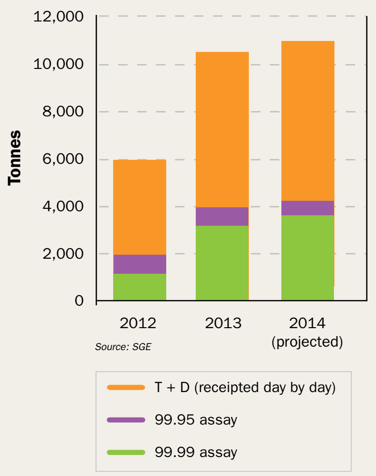
Chart 3: Hong Kong Gold imports



Source: Bloomberg

representative of the Gold Association. He gave us quite an interesting insight into the flavour of what is going on in China from a strategic perspective. Some of the things he talked about included that China planned to change the landscape of world gold markets. He talked about having a strong currency and about having that currency backed by gold, like the US dollar. He also talked about people holding more gold and encouraging more people to hold gold. That is not just individuals, but also the central bank. From that perspective, it is also getting gold into the country in terms of encouraging domestic gold production, but also investing in international mining companies and sourcing the product from them. China has got a very friendly gold strategy.

Chart 4: Shanghai Gold Exchange gold contracts turnover



2. China's Purchasing Power
China is becoming much wealthier. Most economists thought the purchasing power of China would overtake that of the US in 2019. They were five years too soon. It happened this year. The GDP of China is still way below and probably half of that of the US. However, purchasing power is greater. This means that Chinese people have more money to spend. Obviously, we cannot relate it directly to what is happening in the US, but it is a real data reflection on what is actually happening and there is a huge growth going on.

3. Growth of Asia's Regional Markets
In addition to being wealthier, how do you spend that? How do you invest that? China has a very accommodative strategy in terms of promoting gold in the domestic markets. We have seen that in terms of the volumes that have been going through the Shanghai Gold Exchange and also the products that are going through. However, it is not just the Exchange. The government is encouraging the local banks to offer new gold products to their clients. They are building distribution networks for gold investment bars and coins, and pass book accounts. China is now is the largest country for gold processing in terms of jewellery and small bars, and in terms of the jewellery space, there has been a massive expansion of retail space in China in the last year, allowing people to invest in and buy jewellery.

It is not just the physical markets. It is also the futures markets that are expanding. Here, we look at the Shanghai Futures Exchange. Gold from the Futures Exchange is now the second most actively traded contract globally, and silver is the most actively traded contract globally. So the Futures Exchange is also driving the market.

RMB Internationalisation

1. Impact on Dollar Denominated Commodity Markets
China is going through a strategy of internationalising the RMB. This will have a direct impact on international commodity markets. Payments between the US and the rest of the world, and exports from China to the US are seeing a dramatic increase in the use of the RMB rather than US dollars. What we can expect to see is imports into China – for example, commodities – starting to be paid for in local currency. China is probably the largest consumer of commodities globally. It is the largest consumer of copper and iron ore, and we now know it is the largest consumer of gold and oil.

In terms of the strategy for internationalising the RMB, why not encourage the market to pay for these imports in RMB, so when China buys the imports, it will pay for them in RMB? This will help spread the internationalisation of the RMB. Recently, there were some transactions that allowed China to consume iron ore and pay for it in RMB. There was also the recent development of the Shanghai Free-Trade Zone, allowing a corridor for payments from CNY (onshore RMB) to CNH (offshore RMB). It is very important to understand what is going on in the Free-Trade Zone, because that will be, as I said, a corridor for commodity flows, and it will also have an impact on the precious metals market.

2. Benchmarking
How do you get people to use RMB? The way to do it is to use a benchmark denominated in RMB. We are seeing this initiative in the Free-Trade Zone. We have seen the Shanghai Futures Exchange launch a crude oil contract, denominated RMB. This is attracting a huge amount of excitement in China and we expect this to be a very successful contract. This will allow international traders and international companies to supply commodities into China through the Free-Trade Zone and to sell that commodity on an exchange benchmarked in CNH. That means that they are going to be transacting, internationally, in the RMB.

But of course it is not just China that is interesting, a lot is going on in Asia. The Southeast Asian market is a very important market for gold and as we hear today, the launch of the gold contract on the SGX is a key initiative. I would expect the interest in that to be significant, and we are proud to be associated with that initiative.

Lastly, I want to say that when you are using a benchmark, it is important that the benchmark is relevant for you and, importantly here, we are talking about the SGX benchmark for gold and the oil benchmark for China. Why should a country that is importing gold or oil use a benchmark that is set in London or Chicago? Is it not more appropriate that they use a local benchmark for that?

Conclusion

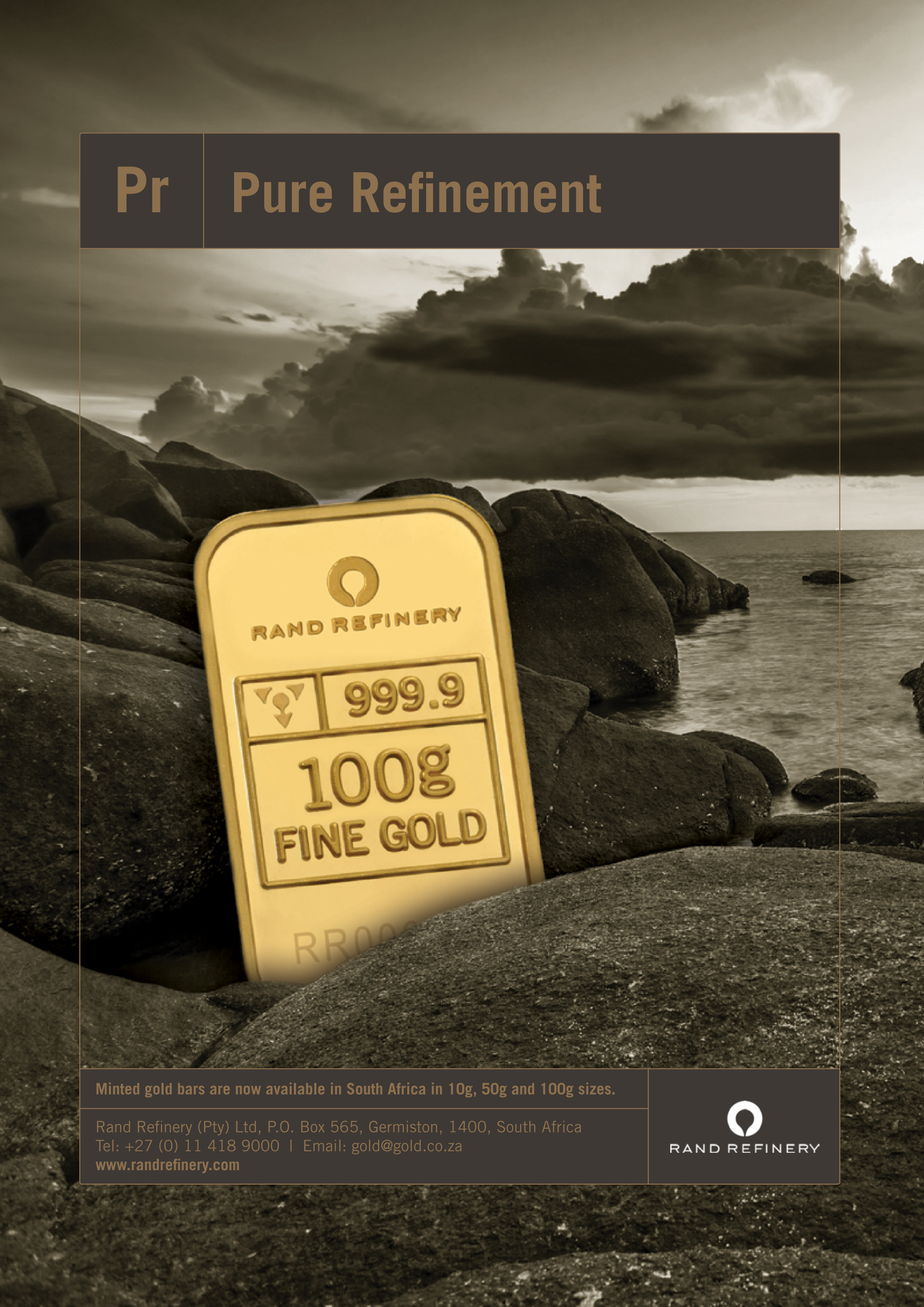
So just to conclude: what does this mean for the market? I talked about China and the impact of prices and flows. The Chinese economy will continue to grow and its pro-gold policy will continue, and I expect that to have much more impact in the future. I picked out a few points today regarding what is going on in China, the huge impact it is having on the global markets, and I think this will become more and more important in the coming years. Also, in relation to the global landscape, the liquidity of China's physical markets and futures markets will continue to grow, and they will overtake the more established Western markets.
Finally, in terms of the internationalisation of benchmarks, I think this will be the biggest challenge for Asia. It is a challenge to be able to change how people use physical contracts against benchmarks. However, I think it is an initiative that will play out in the long term, and in the short term, we are already seeing progress, especially in China. So, I would say, in terms of the benchmarking, watch this space.
Thank you very much.

Jeremy East, Managing Director Global Head, Metals Trading, Standard Chartered Bank
Mr Jeremy East has over 25 years of experience in the metals industry and joined SCB in 2006. His responsibility covers metals trading, hedging, financing and investment solutions covering both physical and derivative products. Additionally, he built up SCB's commodity inventory financing business. The metals trading business has presence in Shanghai, Hong Kong, Singapore, Dubai, London and New York serving its franchise client base mainly in Asia, the Middle East and Africa. SCB is Category 2 member of the LME, member of the LBMA and market making member of the LPPM and was the first international member of the Shanghai Gold Exchange. Jeremy recently relocated to be based in HK, to drive the growth of the metals business in Asia.

Before joining SCB, Jeremy was Global Head of Precious Metals at Commerzbank and also board member of Argor Heraeus – the Swiss gold refinery, where he focussed on a physical precious metals franchise in India, Turkey and in Russia and CIS.

Prior to that, Jeremy started his career with Philipp Brothers, then the largest commodity trading company in the world, where he traded base and precious metals. In 1990, he joined Salomon Brothers to run the precious metals business in London.

Jeremy is an International Advisor to the Shanghai Gold Exchange and on the Management Committee and The Membership Committee of the LBMA.


Pr
Pure Refinement
RAND REFINERY
999.9
100g
FINE GOLD
Minted gold bars are now available in South Africa in 10g, 50g and 100g sizes.
Rand Refinery (Pty) Ltd, P.O. Box 565, Germiston, 1400, South Africa
Tel: +27 (0) 11 418 9000 | Email: gold@gold.co.za
www.randrefinery.com
RAND REFINERY

No More Fixings

By Jon Spall, G CUBED Metals Ltd

It is probably the easiest quiz question to put to anyone in the precious metal community. However, what connects the years 1897, 1919, 1989 and 2014? Obviously, they are the years that the fixings came into being for silver, gold and the platinum group metals (PGMs) respectively. The final date, this year, is likely to see them all cease to exist. Or at least in a way that would have been familiar to those involved in these processes in earlier days.

There have been a number of changes throughout the decades in which the fixings have been in operation – perhaps most notably, for gold, that there was no longer a requirement for gentlemen in top hats (initially in reality and latterly somewhat metaphorically) to stroll around to the offices of N.M. Rothschild at 10.30am and 3pm every trading day. Although, that it took until 2004, around 130 years after Alexander Graham Bell was awarded the first patent for a telephone, is probably noteworthy too. Even then, the change occurred because N.M. Rothschild exited the commodities business and sold its seat on the gold fixing to Barclays – rather than a review of the way that the benchmarking operated. For silver, the most profound change occurred in 1999 when those involved were allowed contact with the outside world. Prior to that innovation, participants were secreted away in an office with a single telephone that was only to be used to ask for the GBP/USD exchange rate once the USD fixing process had been completed.

Platinum and palladium, relative youngsters to the benchmarking system after being established in1989, were not similarly encumbered by the weight of history and banks chose to set the price in a virtual environment while still adopting some of the arcane language and traditions. That some of the original members were the Swiss banks based in Zurich probably helped in the decision that participants did not need to meet face to face to ensure that an appropriate price was arrived at. However, the terminology was consistent across all four metals – such as always giving the selling figure first, but most peculiarly, to outsiders, the notion of 'flag' whenever a declared position needs to be adjusted, discretionary balances and set multiples of participation (be they bars, lakhs or ounces). One thing that is certain in the various reviews that are being carried out into the benchmarking processes is that the word 'fixing' will be consigned to history. Sadly, the connotations are simply too much of a burden in the current environment.

Tradition or Change?

There is little doubt that part of the allure of precious metals to investors is that sense of tradition and permanence in a changing environment. Indeed, it has always been my contention that gold is not an inflation hedge, or many of its other claimed qualities, instead it is a hedge against uncertainty: a far more important property so that the metal can prosper in the seeming polar opposites of inflation and deflation. This sense of continuity remains vital and is deeply routed in the psychological connection that many investors experience when they invest in precious metals.

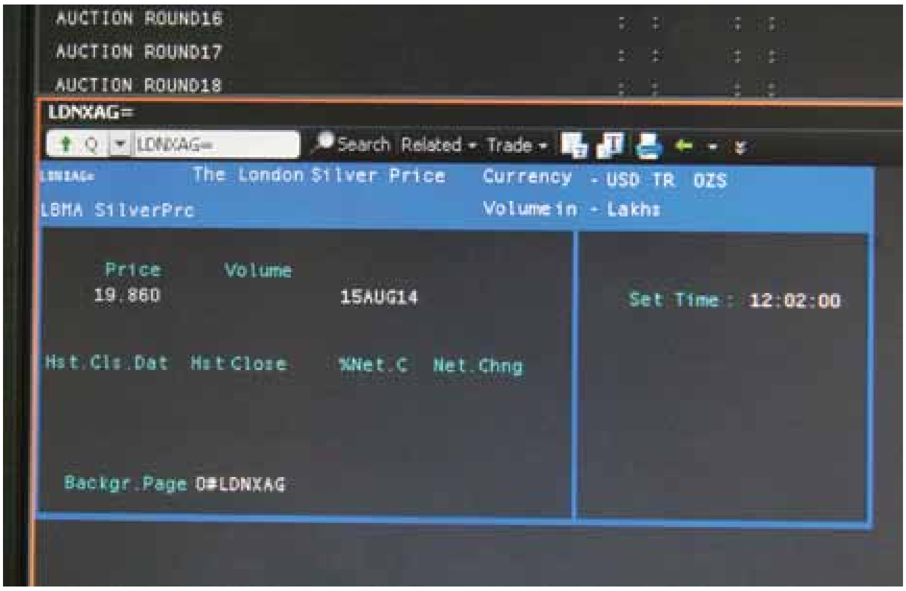
However, in a world where technology dominates our lives and the majority of people embrace the benefits that this brings, often in an unalloyed fashion, then it would seem that there is clear rationale to update the methodology used to set these important benchmarks. Unfortunately, the experience of our industry tends to suggest that change has been a function of necessity rather than choice. Perhaps unsurprising when most of the bodies that are charged with the various responsibilities that ensure the smooth functioning of the market have virtually no full-time employees. Instead, they exist on the goodwill and determination of individuals who strive to fit in a second set of responsibilities that sit alongside their primary: to the institutions (often banks) that actually pay them.

Obviously, the silver market was the first to review, and subsequently change, its methodology for setting the benchmark. Not as the result of an in-depth review of the process to establish best practice, but instead driven by the Deutsche Bank's decision to relinquish its seats on both the gold and silver fixing. The gold fixing has existed several times with only four members, but it was thought, rightly so in my opinion, that in the case of silver,

"The way it used to be. Representatives of the five gold fixing members, circa 1990."

two participants simply did not represent a valid quorum to ‘fix’ a benchmark. Indeed, the opprobrium with which much of the financial community is now regarded meant that the need for change was clear and immediate.

After the London Silver Market Fixing Ltd’s decision to “cease to administer the London Silver Fixing with effect from close of business on 14th August 2014”, the LBMA “launched a consultation in order to ensure the best way forward for a London silver daily price mechanism”. Ultimately, seven potential solution providers for a new silver benchmarking process were invited to present to bullion market participants on Friday 20 June. This meeting, coupled with two surveys carried out by the LBMA and an independent review carried out by me on behalf of my company G Cubed Metals Ltd, gave the market sufficient information to reach a consensus. Hence, on 11 July, it was announced by the LBMA that: “CME Group and Thomson Reuters have been selected to provide the solution for the London Silver Price mechanism.” The first occasion for the LBMA Silver Price, as it is now officially known, took place on Friday 15 August, where the participants were HSBC, ScotiaMocatta and new entrant Mitsui & Co. It is widely anticipated that the list of participants is likely to grow in the coming weeks and certainly before this article is finally published.



“Screen shot showing the first LBMA Silver Price on 15th August with the price set at $19.86”.

The London Gold Market Fixing Ltd (LGMFL) announced on 16 July that “with support from the LBMA it has commenced an RFP (Request For Proposal) process with a view to appointing a third-party to assume the responsibility for the administration of the London Gold Fixing.” The LGMFL clarified its position in a joint press release with the LBMA on 29 July and that “it will start soliciting proposals and open market consultation in late August”. Ultimately, the process was delayed a few days, and on Thursday 4 September, it was announced that the “LGMFL and LBMA are now inviting potential third-party providers who are interested in the RFP process” to join “an open RFP process and all possible solution providers are encouraged to engage”.

> *“CME Group and Thomson Reuters have been selected to provide the solution for the London Silver Price mechanism”*

Similarly to the consultation process around the new silver benchmark, all market participants were invited to complete an online market survey in advance of a seminar and a further market survey. The result is expected to be announced in October, with a new solution in place by year-end.

The London Platinum and Palladium Fixing Company Ltd (LPPFC) announced on 31 July that it “seeks an independent third party to assume responsibility for the administration of the platinum and palladium fixing process”. Expressions of interest had to be received by 6 August. A subsequent press release on 4 August announced that the LPPFC had appointed G Cubed Metals Ltd and myself as independent chair of the platinum and palladium fixings, and that I would also “support the Board’s assessment of responses to the RFP process...”. Potentially, by the time that this article is made available, that decision is likely to have been taken with the LPPFC having appointed a new administrator and potentially a fresh approach to setting the benchmark.

An outsider might query as to why four precious metals took three separate processes to determine the way in which the market set its benchmarks and was it a case of inefficiency? The simple, or perhaps lazy, rejoinder would be that the historic fixings were administered by three separate companies and hence all were required to make their own decision. However, having been closely involved in these processes, I think that this does a huge injustice to those involved. Yes, they wanted to make their own decisions but it was because all concerned were fiercely independent of thought and hence wanted the best for their facet of the market. So while that meant CME/TR for silver, it could be entirely different companies for each of gold and the PGMs. One thing for certain is that by the time this article is printed and read, the outcome of these reviews will be known.

What’s Next For The Market?

From the extensive conversations that I have had around the redesigning of the benchmarks, it seems many in the industry recognise that with the changes taking place, now might well be the appropriate time to analyse all features of the way in which precious metals are transacted.

- Should producers and consumers participate directly in the benchmarking process?
- Should the market move to a cleared model – for spot, forwards and options?
- With precious metals now being quoted on so many foreign exchange platforms, does the market need to emphasise the similarities with FX at the expense of these markets as commodities?
- With kilobars the medium of choice for much of the market, should they be fungible with 400-ounce large bars in any clearing system?
- Do we need an umbrella organisation with a strong voice to promote the interests of our rather small area of the global financial community?

Certainly, this is not meant to be exhaustive nor am I trying to set forward some sort of wish list or agenda. Instead, I am advocating that the industry get together and work out the best way forward for our market to remain relevant in the 21st century. We need to anticipate and embrace change.

Jon Spall, G CUBED Metals Ltd
After 30 years of working for some of the most prominent names in the precious metals market, including 9 years living in Asia/Pacific, Jon recently established his own consultancy company G Cubed Metals Ltd. His website, anticipated to be online in the near future, is www.gcubedmetals.com. He can be contacted on jon@gcubedmetals.com.

Because you need precious metals solutions, we offer trusted global insight and expertise

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery services
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 207 444 9075
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

This communication is issued by Commerzbank. Commerzbank AG, London Branch is authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request. Copyright © Commerzbank AG 2014.

COMMERZBANK

The bank at your side

Do Extraction Costs Drive Gold Prices?

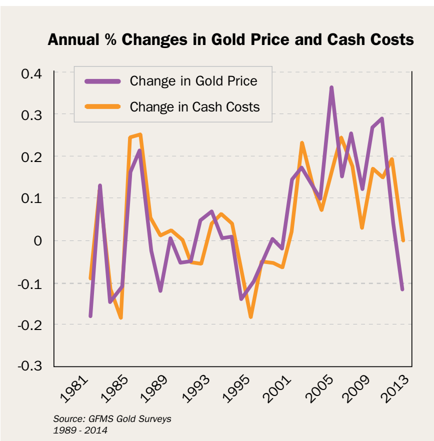
By Brian Lucey, Professor of Finance, Trinity College, Fergal O'Connor, Senior Lecturer in Financial Economics at York St. John Business School (holder of LBMA bursary) and William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS

Some academic studies argue that the cost of gold extraction drives changes in the gold price (see Levin and Wright (2006) as an example). This notion is used to explain the channel through which a long-run relationship between gold and inflation comes about: that as inflationary factors drive up the cost of mining gold, mining companies demand higher prices to compensate them. Here we show that, to the contrary, the gold price should and does cause changes in the cost of extraction.

Under David Ricardo's 200-year-old Law of Rent, the most fertile land is farmed first – or the mine where gold can be extracted at the lowest cost per ounce is mined first. As the demand for gold (or any commodity) increases, its price rises. At these higher prices, it will be profitable for marginal mines, which would have been loss-making at lower prices, to be brought into production. This means that the average cost of extraction for the industry as a whole should rise after prices do and because of the rise. This would make low-cost mines even more profitable and allow overall production to expand to meet increased demand.

Another reason it seems unlikely that miners will be able to set the price of gold in order to compensate themselves for rises in extraction costs is that they seem to lack the market power to do so. Any shortfall in supply can be met in the gold market by a number of types of suppliers and not just miners. Mining companies are not solely required to fill the void.

Gold is unusual among commodities in having a vastly larger accumulated stock than its annual flow from mines, a fact which is due to the very small amounts of gold that are lost from the system each year to reduce the stock. Although it is arguably the most near-market source of potential supply, gold miners only account for a small amount of the gold theoretically available for sale at any given time. This is in contrast to other perishable commodities where the annual supply from production is roughly equal to the total supply available that year.



The amount of gold minded each year relative to the stock of gold available for sale makes it likely that gold miners have low market power and are price takers rather than price setters. From the perspective of the historical gold stocks, gold miners' annual supply adds only about 1.6% to the total estimated stock of gold available (World Gold Council, 2010; GFMS, 2013). Recycling provides a route for less liquid sources of 'supply' through returns from 'demand' sectors such as jewellery back into circulation to meet demand. Indeed, as gold prices increased dramatically between 2003 and 2010, the supply of gold from this channel doubled.

The issue with this proposed channel to explain gold's link to inflation comes into view clearly when we consider what happens when demand falls, causing the price to fall as we saw during the gold ETF sell-off in 2013. Now mines that are high cost are under pressure to modify mine plans to reduce cost, or otherwise cease production. Either way, average extraction costs fall. The cost of extraction is following a market-determined price and not moving ever upwards with inflation.

The graph shows changes in the gold price and changes in cash costs. We test two hypotheses: whether gold prices cause changes in cash costs and that the relationship is positive (a rise in price causes a rise in costs), and also whether cash costs cause prices with a positive relationship. We do this using a Granger Causality test, which assesses whether past gold price changes effect current costs and vice versa.

We use annual gold prices and the world cash costs between 1981 and 2013. This testing allows us to be 99% confident that gold prices cause cash costs. We can be 95% confident that cash costs have an effect on prices, but the analysis gives an unusual result. A rise in gold prices in the previous year causes cash costs to rise by about 76% as much, so that a $10 rise in prices causes a $7.60 increase in cash costs. Only changes in the previous year are found to have causal effect. When we look at the relationship between costs at a national level and dollar gold prices, our findings are confirmed in the vast majority of cases. We also run this test using total production costs and the finding is the same.

This theoretical and empirical evidence points to the fact that gold prices are a determinant of producers' cash costs as we suggested, with rising prices causing rising costs. Another channel is needed to explain why many studies find a link between the gold price and inflation.

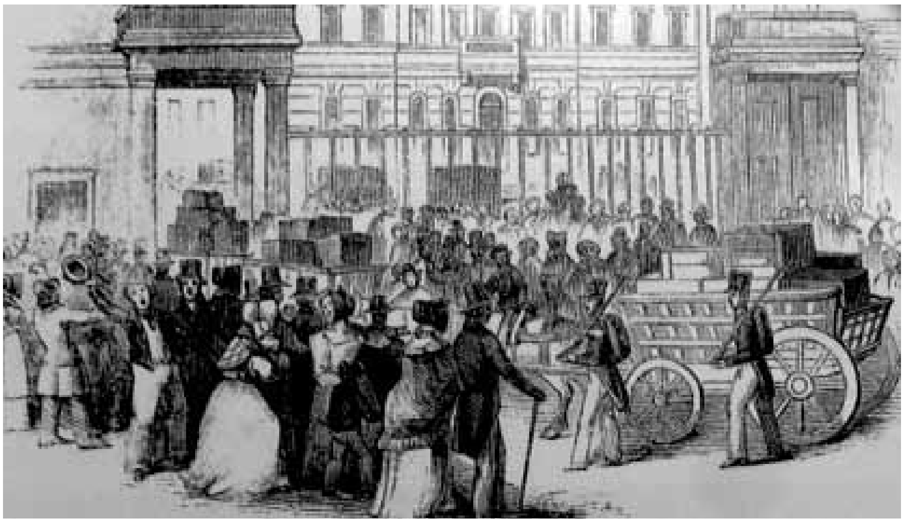
Fergal O'Connor
Fergal O'Connor is the current holder of the LBMA bursary and is Senior Lecturer in financial economics at York St. John Business School.

Dr Brian Lucey, Professor of Finance, Trinity College Dublin
Brian is Professor of Finance at Trinity College Dublin, and he also holds visiting positions at Glasgow Caledonian University and the University of Ljubjanja Slovenia. His research areas include the financial economics of precious metals, behavioural finance, international finance and financial integration and he is editor of two academic journals (International Review of Financial Analysis and Journal of Behavioural and Experimental Finance). He has published over 60 academic papers and several books.

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS
Having joined GFMS Ltd as a Metals Analyst in 2005 to cover the mining sector, William was brought across to Thomson Reuters in GFMS' 2011 acquisition and holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. He has accountability for the mining team's research output of global production, mining costs and producer hedging research across the precious metals.

1897 - 1939, A New Era for the London Silver Price

By Dr Michele Blagg, Research Associate at the Institute of Contemporary British History (ICBH)



The arrival of Chinese booty at the Mint. From the 'Illustrated London News', 1843.
'The Royal Mint, An Illustrated History', p.31. Reproduced with the kind permission of the Royal Mint Museum.

> ***"The more the men of to-day know about the operations that take place in the London Money Market, the greater will be their pride in it, and the greater their ability in upholding its supremacy... for knowledge itself is power."*** **W.F. Spalding[1]**

As silver enters the digital age with the daily benchmark value of the precious metal now being set electronically, I was curious to learn more about the introduction of the London silver 'fixing' that began in 1897, and the early form it took, which changed little until the outbreak of war in 1939. Over the past 117 years, the 'fixing', while perhaps not as glamorous as gold, was a private auction carried out amongst a select group of precious metal dealers. The relatively calm daily ritual performed an important function by setting an exchange price for silver. In terms of monetary history, silver's price movements over the past century have at times been volatile, erratic and even spectacular.[2] Tracing the origin of the 'fixing' proved more difficult than anticipated, for there has been little published on the history of the London silver market and even less on the 'fixing' process. Tim Green's (1982) *Precious Heritage: three hundred years of Mocatta & Goldsmid* continues to offer the best account of the evolution of the market. Early accounts of both the market and the 'fixing' are found in literature by Benjamin White (1917) in *Silver, Its History and Romance* and W. F. Spalding's (1922) *The London Money Market*. Roy Jastram's *Silver: The Restless Metal* (1981) provides a comparative study of the economic performance of silver between Britain and the United States. While S.L.N. Simha and Janaki Krishnan's *The Saga of Silver* (1980) concentrates on the decline and recovery of silver in the East, Donald McDonald's *History of Johnson Matthey*, together with archival papers located at the Bank of England and at HSBC, offer further insights into the early relations between the London precious metal brokers and casts light on market procedures. Media reports and annual bullion circulars, produced by both Samuel Montagu & Company and Sharps Pixley Ltd., also proved extremely useful.

The decline of silver and its price

Before 1850, silver and gold had both been important monetary metals. Jastram observed that a number of important factors were at work. Firstly, over the next two decades, increased gold production supplied enough gold to displace silver in its monetary role, following the new gold discoveries in the United States and Australia.[3] This presented a substantial advantage of gold as a standard for large transactions, and most European countries subsequently went on to the gold standard during the 1870s.[4] This resulted in monetary demand for silver declining in the Western world, leaving monetary demand mainly confined to Asia. Understandably, the price of silver dropped as there were no longer mints to support a fixed price of silver by free coinage.[5] Following the establishment of the gold standard almost simultaneously by so many nations, a shortage of gold was experienced. During the 1870s and 1880s, as commerce and trade expanded, world production of gold was constant or declining. The resultant international illiquidity, together with the persistent deflation over the three decades from 1865, saw the price of silver fall along with the price of other commodities.[6] Throughout all of this, world production of silver vastly increased from 40 million ounces per year in the 1860s to 160 million ounces in the 1890s.[7] Jastram concluded that "an effect on the price was inevitable". As the crisis in silver unfolded, the London price fell from £0.27 pence per troy ounce (New York $1.42) in 1850 to a low of £0.11pence (New York $0.62) by 1900.[8]

The London silver market, expansion, intervention and co-operation

During the 1850s, the composition of the London bullion market changed. The market expanded as Sharps & Wilkins, Pixley & Haggard (soon Abell) and Samuel Montague & Co joined Mocatta & Goldsmid as approved silver brokers to the Bank of England, a position that Mocatta had exclusively held between 1721 and 1840. The number of approved refiners listed by the Bank of England also expanded and Johnson & Matthey, Rothschild's Royal Mint Refinery and H.L. Raphael's Refinery joined Browne & Wingrove.[9]

London occupied the enviable position as the world's leading silver market. Spalding explained that there were two main reasons

1 W. F. Spalding, *The London Money Market* (London: Sir Isaac Pitman & Sons Ltd., 1922), p.199.
2 By the early part of the thirteenth century foreign trade brought quantities of foreign coin and bullion into the country and it was mainly from this source that the silver for the increasing needs of coinage was obtained. For this purpose each mint had an exchange at which foreign coin or bullion or old coin, when recoinages were undertaken, could be exchanged for new English coin but for this service a charge was levied of which a part, known as a seignorage, went to the King and the other part to the mint-master to pay the expenses of the Mint and to yield him a profit, (see *The Royal Mint, An Outline History*, London 1953, p.8).
3 Roy Jastram, *Silver: The Restless Metal* (Canada: John Wiley & Sons inc, 1981), p.75.
4 Ibid., p.76.
5 From the eighth century the English silver coins contained 92.5 per cent of fine silver and, except for a short interval in the sixteenth century, this composition continued until 1920. Following the first World War the price of silver rose so high that the metal value of the coins was for a short time higher than the face value (see for further details, *The Royal Mint, An Outline History*, London: Private publication, 1953, p.13).
6 Jastram, *Silver*, p.75.
7 Ibid., p.76.
8 Ibid.
9 Timothy Green, *Precious Heritage: three hundred years of Mocatta & Goldsmid* (London: Rosendale Press, 1983), p.26-7; Mocatta & Goldsmid remained exclusive silver brokers to the India Office, which had replaced the old East India Company, and fulfilled large silver contracts for them as long as the British ruled India, p. 27.

“In 1871, 26 years before the introduction of the first silver fixing, the four London brokers took steps to protect their market positions against international competition.”

for this. Firstly, London held the lion’s share of the Far Eastern trade. India and practically all Far Eastern countries were users of silver and whilst some Far Eastern countries were on the gold standard, or something approaching it, silver was power all over the East, both as a commodity and medium of exchange.[10] Branches of all the Indian and Far Eastern banks were located in London; these were the principal intermediaries for the mercantile trade of the Far East. Apart from this, geographically, London was a convenient centre for supplying the coinage requirements of European nations. Secondly, there were regular weekly shipments of silver from American and Mexican producers to London, which were dispatched to smelters and refiners before being sold to India through the London brokers.[11]

In 1871, 26 years before the introduction of the first silver fixing, the four London brokers took steps to protect their market positions against international competition. Papers located in the HSBC archive include a draft agreement drawn up in that year between Mocatta & Goldsmid, Sharps & Wilkins, Pixley, Abell, Langley & Bland and Samuel Montagu & Co., who joined forces to regulate commission rates, charged at three-eighths per cent, and agreed not to compete with each other for purchases of silver imported into London by banking companies by reducing the commission rate. As far as practicable, it was agreed that each firm should have an equal share in the volume of transactions.[12] In order to effect the equitable division, whichever brokerage negotiated the sale of silver would, immediately the deal was realised, transmit to the other three firms one-quarter of the commission obtained by the sale. Additionally, it was agreed that Montagu’s had the right to purchase one quarter of each parcel of dore silver, or its refined equivalent for their operation, providing that they decided upon exercising such right within one hour’s notice being given to them by the acting broker.[13] Although no price advantage was given to Montagu, the firm was expected to pay the same as that price obtained for the remainder of the parcel. The final clause concerned withdrawal from the agreement should any “serious difficulty in carrying out this arrangement” arise and required one month’s written notice to be given to the remaining three firms. Unfortunately, no accompanying paperwork has survived to suggest exactly why the agreement was drawn up, but I suspect it was in the interest of the London market as a whole by eradicating competition and ending the erosion in commission rates by the four brokers. Abraham Mocatta, in his diary started in 1871, wrote of the “slightly brash rivalry” between the newcomers Pixley and Montagu, who were “always trying to gate-crash Mocatta & Goldsmids long established connections”. The draft agreement provides evidence that the four firms were willing to put differences aside and work together, pledging mutual co-operation and trust. Certainly, 1871 appears to have been a good year for Mocatta & Goldsmid. Most of their business was on private account to Bombay merchants. Abraham recorded that “the demand for silver for India has been the chief cause of the year’s activity” and “has been a great success.....the profits of £13,429.13.8 have only been matched once during the past quarter century”.[14]

Concerns for the continued declining price of silver sparked the formation of the 1876 House of Commons Select Committee to look into the depreciation of silver. The London bullion brokers presented evidence to the Committee advising that large-scale demonetisation of silver had led to a further fall in the price. The Committee in its final report made no positive suggestions.[15] Action over the falling price was taken in the United States in 1878 when a campaign was launched to protect the interests of silver producers. This resulted in the passing of the *Bland-Allison Act*. The Act required the government to purchase silver in the market, with a value of between $2 million and $4 million, for coinage into dollars.[16] Jastram considered that the Act was “entirely ineffective” and it was subsequently replaced in 1890 by a stronger pro-silver law, the *Sherman Silver Purchase Act*.[17] This legislation mandated the Treasury to buy 4.5 million ounces of silver each month, which was almost double the amount actually purchased under the *Bland-Allison Act* and equated to almost the entire output of the mines in the United States.[18] The silver price continued to fall and, in an attempt to reverse it, the *Sherman Silver Purchase Act* was repealed in 1893. Around 1900, silver dropped off the political agenda as Congress passed the Gold Standard Act.[19]

The introduction of the London silver fixing in 1897 marked an abrupt change in British price history and a new era in the market’s structure.[20] As London handled the bulk of silver produced, it followed that it was London that called the tune and ‘fixed’ the price for the whole world.[21] During the summer of 1896, after almost two decades of continuous decline, the silver price reached an all-time low. The volatility of the price made a daily silver fixing necessary. Before the demonetisation of silver, and the great fall in price that followed, the fluctuations as well as the volume of business transacted were so small that the operation of ‘fixing’ had been carried out by informal change of notes or by verbal messages.[22] The first ‘fixing’ meeting was held at the offices of Sharps & Wilkins, 32 Great Winchester Street, with the other three London brokers Mocatta & Goldsmid, Pixley & Abell and Samuel Montagu in attendance. The brokers met once a day with their buying and selling orders in hand, where they would then enter a room and negotiate the price for silver based on those orders. The ‘fixing’ price of silver controlled the price of the metal in every important financial centre throughout the world.[23] The finer details of the ‘fixing’ process were explained to readers of *The Times:*

“The method was for each broker to total up his orders, and from his ‘book’ he estimated what he considered the price should be. From the result he sent a note to one or other of the brokers giving his opinion; in return he would get a reply giving other points of view and possibly suggesting a sale to, or a purchase from them, of so many thousand ounces. After an interchange of notes of this nature the price would be mutually agreed upon and officially announced. Nowadays [1933], the partners of the four firms meet and after each broker has

“As London handled the bulk of silver produced, it followed that it was London that called the tune and ‘fixed’ the price for the whole world.”

balanced his buying orders against his selling orders the price is moved by sixteenths of a penny until the required balance is obtained or disposed of.”[24]

During the ‘fixing’ process, the brokers had no contact with the outside world or their own firms – of course, in 1897, telephones were the exception rather than the rule. Direct telegraph links with New York and Bombay made the daily price available internationally. Those attending the market were the people who could make decisions about the trading position of their firm. Each broker, whilst he may disclose the excess of his own position as a buyer or a seller

10 Spalding, *London Money Market*, p.172-3.
11 Ibid.
12 HSBC Group Archive, UK/1432/0058/006, ‘Draft Agreement’, Sep 1871.
13 Ibid.
14 Green, *Precious Heritage*, p.29.
15 S. L. N. Simha and Janaki G. Krishnan, *The Saga of Silver* (Madras, Institute for Financial Management and Research, 1980), p.54.
16 Simha & Krishnan, *The Saga of Silver*, p.61. During the 12 years the Act was in force a total of 291.20 million ounces of silver were purchased at a cost of $308 million.
17 Jastram, *Silver*, p.78.
18 Ibid.
19 Ibid. In the Presidental election in 1896 the defeat of the Democratic candidate William Jennings Bryan, an extreme silverite whose key issue had been bimetallism, saw the end to the ‘free-silver’ movement which never recovered.
20 *The Economist* made early reference to the term ‘fixing the price’ in relation to precious metal as it was explained that “the term thus used does not imply a ‘fixed price’ in the same sense that a ‘fixed price’ of any other article expressed in money, but to all intents and purposes merely signifies a fixed quantity of metal in the coin” (*The Economist*, ‘A fixed price of gold – The balance of power in Europe’, 4 Dec 1847).
21 Spalding, *London Money Market*, p.172.
22 Benjamin White, *Silver, Its History and Romance* (London: Hodder and Stoughton, 1917), p.166.
23 Ibid.
24 *The Times*, ‘Dealings in Precious Metals, How Business is conducted’, 20 Jun 1933.

at a given price, was careful to protect in every possible way the interests of his clients and to preserve their anonymity. It was quite possible for the business done in the market upon a given day to be extremely large, as clients were advised to give a discretion to brokers as to the quantity of silver desirable to operate for their account upon any one day.[25] Within a very short time, two prices were 'fixed' daily at 1.45 pm Monday through Friday and at 11.45 am on Saturday – cash (up to seven days) and two months forward.[26] The average cash price of silver for 1897 was 27.56 pence per standard ounce.[27] McDonald, in his own explanation of the 'fixing', wrote that:

"There was very frequently a small difference between the two rates reflecting the relative demand. Two months was a useful period to enable [for those buying their metal unrefined to arrange for] the refiner to carry out his work and also to cover the transportation of metal already refined. The market was a thriving one, the preponderance of supply coming from the Americas and the demand from the silver using countries of the east and the traffic could go both ways. It can fairly be said that the London Silver Market helped among the other markets, to make that city the financial center of the world."[28]

The two-month delay also enabled those who bought unrefined silver to cover themselves against a fall in the price of silver bought for manufacturing by making it possible for them to

> *"At the turn of the 20th century, business in silver differed from that in gold in several ways."*

sell an equivalent amount of silver 'spot' from stock and to buy it 'forward' for replacement two months hence, so reducing their possible loss to the usually small discount between the two prices.[29] The two periods of delivery – cash and two months forward – were obligatory between brokers, but brokers could, as a rule, make arrangements with their clients so as to suit the latters' convenience with regard to shipping, etc. This may have involved an expense to the broker in loss of interest, etc. and also some risk of failure to keep engagements that he had contracted with another broker in order to execute his client's business.[30]

At the turn of the 20th century, business in silver differed from that in gold in several

Pyramid of LGD silver bars

ways. The most notable was that there was no ultimate buyer with a fixed price. Silver, like any other commodity, is subject to the forces of demand and supply, and is open to political and economic disturbances. The prime cause in price variation was from wars and financial crises, but also an important factor were the varying demands from the economies of India and China, based on silver. As silver rarely occurs in nature as native metal, it was necessary to conduct a complex chemical or smelting operation, or series of operations, by the bullion refiner before the silver could be put into a suitable condition to be offered for sale.[31] Between 1860 and 1914, one of the main sources of supply received in London came from demonetised silver coin. White described the arrival and treatment of a consignment of coins he witnessed whilst visiting the Rothschild Royal Mint Refinery:

"Silver arrives in wooden boxes containing – in case of dollars – about 3,000 pieces, 1000 in a bag. It's interesting to watch the ease with which an expert workman trundles each box into position, tips it upon end, severs the iron hooping and splits the side with one blow of the axe, lets the box slide flat on the floor and, with one more blow, spirits the upper iron band, and lid as well. Then with a blow sideways from the back of the axe, he lays the box upon its side and wrenches the split side open with his hands if loose enough, or with his axe if it clings together; and in less than a minute the three bags are lying loose around the fragments of the box. Each bag of coins is then emptied separately into the scale and weighed. Though more difficult to stack, bags of coin can be built up into a solid wall, provided the two ends are securely held by silver bars or by the sides of the safe."[32]

After 30 July 1914, just preceding the declaration of war by Britain against Germany, the official quotation for forward delivery was temporarily discontinued. War brought silver to the fore again. In 1917, when the price rose to 0.55 pence per ounce, due to heavy demand from India and other countries, the United States, Britain and Canada combined to introduce control restrictions over silver trade and prohibited its export without a licence in their respective territories.[33] In 1918, Britain was forced to appeal to the United States to sell part of its silver reserves, as a shortage of supplies caused a near crisis in India when the market value of the metal rose to equal the bullion value of the rupee. *The Pittman Act*, passed by Congress in 1918, authorised the sale and prevented the large-scale melting down and export of silver coin.[34] These measures were successful in keeping the price of silver in the range of 0.41 to 0.49 pence for the remainder of the conflict.[35] Increased demand for silver for coinage and industrial purposes saw the price double during the years of conflict; however, its revival was short-lived and the price of silver declined over the next two decades.

Dr Michele Blagg (BA, MA, PhD) is a visiting Research Associate at the Institute of Contemporary British History (ICBH) at King's College University. Michele is a Research Consultant for the LBMA, currently engaged on the oral history project 'Voices of the London Bullion Market'. As part if a collaborative doctoral award granted by the Art's and Humanities Research Council, she was based at the Rothschild Archive. Her doctoral research focused on the Royal Mint Refinery, operated by N M Rothschild & Sons between 1852 and 1968, and how it adapted to the changed London gold market.

Her areas of interest are in financial and business history with special regard for the actors and networks located in the London market.

She teaches on the MA in Contemporary British History and assists with the Witness Seminar Programme. She sits on the Business Archives Council Executive and is involve in the annual 'Meet the Archivists' workshop held in the City that aims to explore ways in which research students can identify and use business records in a variety of different research fields.

25 White, *Silver*, p.168.
26 *The London Silver Market* (Private publication, 1982).
27 Simha & Krishnan, *The Saga of Silver*, p.49. Prices of bar silver in London were quoted per standard ounce from 1890 to 1900 and thereafter per ounce of 0.999 fineness.
28 Donald McDonald, *The History of Johnson Matthey and Company, Volume One, The Years of building, 1860-1914* (London: private publication, 1974), p.37.
29 McDonald, *Johnson Matthey*, p.112.
30 White, *Silver*, p.187.
31 McDonald, *Johnson Matthey*, p.38.
32 White, *Silver*, p.189.
33 Simha & Krishnan, *The Saga of Silver*, pp.83-8.
34 The Pittman Act, enacted in April 1918, authorised the conversion and sale of 350 million silver dollars into bullion. Under the Act, 270,232,722 standard dollars were converted into bullion (259,121,554 for sale to Britain at $1.00 per refined ounce, plus mint charges).
35 Simha & Krishnan, *The Saga of Silver*, p.84.

PRECIOUS METALS MANAGEMENT

TURKEY • USA • SPAIN • GERMANY • DUBAI

IGR is the largest and the fastest growing precious metals refinery in Turkey and continues to work towards being one of the best and most reputable refineries in the precious metals industry worldwide.

IGR provides quality and reliability with rapid settlements, accurate assays and fast payment to the world's leading mining companies.

IGR has a ISO 14001 certification for its commitment to national environmental protection and its laboratory is accredited according to ISO 17025.

LBMA
GOOD DELIVERY REFINER

ISTANBUL GOLD REFINERY
igr.com.tr igrglobal.com

ISTANBUL GOLD REFINERY IGR MELTER & ASSAYER

The 2014 LBMA Singapore Bullion Market Forum Review

By Aelred Connelly, Public Relations Officer, LBMA

The LBMA held a Bullion Market Forum at the Marino Bay Sands Hotel in Singapore on 24-25 June, 2014. The purpose of the forum was to highlight developments in the local Singapore bullion market. The LBMA have held similar forums in the past in Moscow, New Delhi and Shanghai to focus primarily on local bullion market issues. As such the forums are typically smaller in scale than the LBMA's annual conference that has a more international based focus. The forum proved a great success with more than 200 paying delegates in attendance, which surpassed expectations.

The forum proceedings opened on the Tuesday afternoon with a Welcome Cocktail Reception, sponsored by IE Singapore. After an evening of networking, the formal forum programme began the following day with a total of 30 speakers and moderators participating in six sessions spread over the course of a full day. The keynote speech was delivered by Jeremy East, Managing Director of Metals Trading, Standard Chartered Bank who provided a fascinating insight into the trends and developments in the international bullion market. Delegates voted for Jeremy as the best speaker and his speech is reproduced on page 10. Another highlight was the speech by Xu Luode, Chairman of the Shanghai Gold Exchange, who described the growth and development of the gold market in China and how it has started to open up to the world. His presentation is reproduced on page 6.

There were many other interesting presentations including those in the Session on the effects of regulatory changes in the Indian bullion market, the development of the Singapore bullion market as well as the next steps for the growth of the physical precious metals market in East Asia.

Delegates enjoyed a wonderful lunch sponsored by Singapore Exchange Ltd. and following a full day of presentations, the evening's festivities began with a Cocktail Reception followed by the Conference Dinner, sponsored by IE Singapore. There was plenty of entertainment too, with the story of the development of Singapore and the four predominant cultures (Chinese, Indian, Malay and Eurasian) told through the mediums of dance, music and food.

Our congratulations and thanks to all the speakers, sponsors and delegates involved in helping to make the forum such a great success. Attention now turns to the annual LBMA Precious Metals Conference which will take place in Lima, Peru during the period 9-11 November. We hope to see you there! Visit the LBMA's website for details on how to register and read more about the conference in the Editorial, by Edel Tully on page 30.

ROYAL CANADIAN MINT GLOBAL STORAGE SOLUTIONS

The **Royal Canadian Mint**, a Crown corporation of the Government of Canada, is a global storage leader for gold, silver, platinum and palladium coins and bars at leading facilities worldwide. Providing unparalleled ounce-for-ounce security and flexibility, our offering is backed by a triple-A credit rating and world-class precious metal products.

- World-leading gold and silver refinery
- Strong relationships with major global bullion banks for highly-liquid pool and physical accounts
- Products accepted on the world's major precious metal exchanges
- Long history of precious metal storage for funds, institutions, banks and high-net worth individuals
- LBMA Associate Member
- ISO 9001:2008 registered

TO LEARN MORE ABOUT ROYAL CANADIAN MINT GLOBAL STORAGE SOLUTIONS:

MINT.CA/SECURE
+1 613 998 1400

SERVICES D'ENTREPOSAGE MONDIAL DE LA MONNAIE ROYALE CANADIENNE

Société d'État du gouvernement du Canada, la **Monnaie royale canadienne** est un chef de file mondial en matière d'entreposage international sécurisé de l'or, de l'argent, du platine et du palladium. À la polyvalence inégalée de la Monnaie s'ajoutent une cote de crédit AAA et des produits de métaux précieux de renommée mondiale.

- Chef de file mondial de l'affinage de l'or et de l'argent
- Liens solides avec de grandes banques d'investissement internationales permettant d'importantes liquidités tant dans notre compte collectif qu'en actifs physiques des particuliers
- Produits acceptés par les plus importants marchés de métaux précieux au monde
- Solides antécédents d'entreposage de métaux précieux pour les fonds privés, les institutions financières, les banques et les bien nantis
- Membre associé de la LBMA
- Certification ISO 9001:2008

POUR EN SAVOIR PLUS SUR LES SERVICES D'ENTREPOSAGE MONDIAL DE LA MONNAIE ROYALE CANADIENNE :

MONNAIE.CA/SECURE
+1 613 998 1400

© 2014 Royal Canadian Mint. All rights reserved. © 2014 Monnaie royale canadienne. Tous droits réservés.

Regulation Update

By Sakhila Mirza, LBMA General Counsel

Responsible Gold Guidance (RGG)

Refiner audit reports

Since the launch of the LBMA's Responsible Gold Programme in 2012, refiners have worked hard in implementing the RGG standard, which extends the OECD Gold Supplement for Refiners and builds on existing Anti-Money Laundering and Know Your Customer management systems and auditing practices. It also makes what is a voluntary system (the OECD Guidance) mandatory for all LBMA Good Delivery gold refiners wishing to be accredited for the London Bullion Market. As per the RGG, all refiners have three months from the end of their financial year to submit their independent audit reports to the LBMA. For most refiners, this deadline was March 2014, and the LBMA has been in contact with a number of the refiners to confirm that they have passed the 2013 audit programme.

LBMA Refiner Toolkit

The LBMA has launched the final draft of the Refiners Toolkit for consultation before implementation from the beginning of 2015. This optional Best Practice toolkit contains tailored gold supplier checklists, questionnaires and assessment forms to assist refiners conducting due diligence for both mined and recycled gold. These are intended to promote due diligence consistency for all LBMA gold refiners and to assist the auditors in assessing how the refiners are meeting LBMA requirements. Many thanks to Argor-Hereaus, Metalor and PAMP, who have been heavily involved in putting this together.

OECD & EU Update

The next OECD meeting will take place on 3- 5 November in Kinshasa, Democratic Republic of the Congo. The agenda is in development but will undoubtedly focus on the upstream supply chain and in-region sourcing.

The FCO invited the LBMA, as well as the WGC and Intel amongst others, to attend a meeting to discuss the EU's proposed regulation on responsible sourcing of minerals from conflict-affected and high-risk areas (the Regulation) in line with the OECD Due Diligence Guidance.

At a high level, it was accepted that the EU:

- Definition of an importer appears wider and less clear than that of the OECD;
- Has chosen a much broader geographical scope, so there is a lack of consistency in approach;
- Should provide for consistency/alignment with pre-existing initiatives, particularly to avoid duplication of effort/auditing.

The LBMA also met with the Directorate General for Trade at the EU offices in Brussels, as a follow-up to the discussion with the Directorate at the OECD meeting in Paris back in May. The discussion focused on the requirements for all importers' gold (unwrought or in semi-manufactured forms; custom codes 7108, 7108 11 00, 7108 13, 7108 20 00). This requires banks and other downstream participants to arrange an independent third-party audit under the draft Regulation. The EU current draft requires banks to be audited to prove how they import conflict-free materials into the EU. The LBMA did express that such audits were not consistent with the OECD Guidance Gold Supplement, and were unnecessarily onerous, as well as duplicative due to the Responsible Gold programme.

Other regulatory news...

Basel III

The LBMA submitted a response to the Basel Banking Committee, requesting it not to apply a simplistic approach to all commodities by imposing a fixed Required Funding Ration of 85%, which would apply to gold as well, given that gold is a unique commodity and its specific attributes should be taken into account. The LBMA along with other industry groups is part of a working group to continue with its efforts in favour of a more calculated approach to the Required Funding Ratio.

MiFID

The LBMA also submitted a response to the EU on the MiFID consultation, focusing on the definitions of commodity derivatives and the definition of commercial purpose, highlighting that physical gold and silver trades should not be caught by this regulation, otherwise it will end up capturing so many organisations that are not set up to deal with financial regulations.

DIARY OF EVENTS 2014

OCT

1-2
World Commodities Week 2014
ETC Venues, St Pauls, London
www.terrapin.com/conference/world-commodities-week

8-9
The Gold Investment Symposium
Sydney, Australia
www.symposium.net.au/gold

15-16
Africa Dubai Precious Metals Forum, Accra, Ghana
www.adpmf.com

20-23
LME Week, London, UK
www.lme.com/lmeweek.asp

20-23
China Mining Congress & Expo
Tianjin Meijiang Convention & Exhibition Center, Xiqing District, China
www.chinaminingtj.org/en

24-26
13th China International Silver Conference, Tianjin, China
www.silverinstitute.org

NOV

4-5
Europe Precious Metals Summit
Switzerland
www.precioussummit.com

9-11
LBMA Precious Metals Conference 2014
Westin Lima Hotel & Convention Center, Lima, Peru
www.lbma.org.uk

19
RBC Gold Conference
London, www.rbccm/about/cid-202541.html

DEC

1
LBMA Biennial Dinner
Guildhall, London
www.lbma.org.uk

3-4
9th Shanghai Gold Summit 2014
Shanghai, China
www.chinagoldsummit.com

4
Russian Bullion Forum Awards 2014
The Moscow Exchange and Metropol Hotel

2015

APR

12-13
Dubai Precious Metals Conference 2015
Dubai, UAE
www.dpmc.ae

14-16
European Gold Forum
Zurich, Switzerland
www.denvergold.org/gold-forums

MAY

18-22
LPPM Platinum Week
London
www.lppm.com

28-29
Hong Kong Precious Metals Summit
Hong Kong
www.precioussummit.com

JUN

13-16
IPMI 39th Conference
JW Marriott, San Antonio, Texas
www.ipmi.org

OCT

18-20
LBMA Precious Metals Conference 2015
Vienna

Commitment and Stability: Worth their weight in gold.

A commitment to the Metals Trading Business.

TD remains firmly committed to strategically growing its metals trading business. While some banks in the commodities market are scaling back their operations, we have now added base metals trading to our portfolio and are steadily establishing a substantial presence in the global metals market. Plus, our team of dedicated Global Metals professionals brings deep market insight and a combined experience of 150+ years in the industry.

Our reputation for being one of the safest [1] and strongest [2] financial institutions in the world means our clients feel secure knowing they are dealing with a top ten North American bank and one of the few banks globally to be rated Aa1 by Moody's.[3]

At TD, we are committed to the gold mining industry and recognize Peru's significance in the global metals market. We are proud to take part in the November 2014 LBMA conference being held in Lima, Peru.

Our global offices:

New York
T: +1 212 827-7866
gpm.ny@tdsecurities.com

London
T: +44 (0) 20 7628-5665
gpm.london@tdsecurities.com

Singapore
T: +65 6500-8022
gpm.singapore@tdsecurities.com

Toronto (Research)
T: +1 416 983-9288
Bart.melek@tdsecurities.com

US$ 4,000,000,000	US$ 2,000,000,000	US$ 2,000,000,000	US$ 1,200,000,000	US$ 1,000,000,000
BARRICK	GOLDCORP	KINROSS	AGNICO EAGLE	YAMANAGOLD
Barrick Gold Corp.	Goldcorp Inc.	Kinross Gold Corp	Agnico Eagle Mines Ltd	Yamana Gold Inc.
Revolving Facility	**Revolving Facility**	**Revolving and Term Facilities**	**Revolving Facility**	**Revolving Facility**
2013	2014	2014	2014	2014
Participant	Co-Documentation Agent	Co-Documentation Agent	Co-Lead Arranger & Syndication Agent	Participant

Contact one of our global offices today

TD

[1] Ranked the safest bank in North America and the 11th safest bank in the world, according to Global Finance Magazine, April 2013. [2] Ranked the 5th strongest bank in North America and within the top 25 strongest banks in the world, according to Bloomberg, June 2014. [3] For long term debt (deposits) of The Toronto-Dominion Bank, as at July 31, 2014. Credit ratings are not recommendations to purchase, sell, or hold a financial obligation in as much as they do not comment on market price or suitability for a particular investor. Ratings are subject to revision or withdrawal at any time by the rating organization. TD Securities represents TD Securities Inc., TD Securities (USA) LLC, TD Securities Limited and certain corporate and investment banking activities of The Toronto-Dominion Bank. All trademarks are the property of their respective owners. ® The TD logo and other trade-marks are the property of The Toronto-Dominion Bank.
M1408044

LBMA News

By Ruth Crowell, Chief Executive, LBMA

MEMBERSHIP

Associates
On 16 June, CJSC 'Sberbank' CIB was admitted as an Associate.

On 11 August, NOMOS Bank OJSC changed its name to OJSC 'Bank Otkritie Financial Corporation'.

On 23 July, Istanbul Gold Exchange transferred its Associate status to Borsa Istanbul A.Ş.

These changes brought the membership to 146 companies, comprising 76 Members (of which 11 are Market Makers) and 70 Associates.

GOOD DELIVERY LIST

On 16 May 2014, the gold refinery of MMTC-PAMP India Ltd was admitted to the Gold Good Delivery List. This is the first time that a gold refinery from India has been accredited by the LBMA. The company's silver refinery was accredited in October 2013.

On 23 May 2014, the silver refinery of Ohio Precious Metals LLC of the United States was added to the Silver Good Delivery List.

On 3 June 2014, the gold refinery of Heimerle + Meule GmbH of Pforzheim in Germany was added to the Gold Good Delivery List.

On 30 June 2014, the silver refinery of Hunan Huaxin Nonferrous Metals Co. Ltd of Zixing City in China was added to the Silver Good Delivery List.

On 17 July 2014, the gold refinery of Metalor Technologies Singapore Pte Ltd was added to the Gold Good Delivery List.

On 12 August 2014, the gold refinery of TCA SpA of Capolona in Italy was added to the Gold Good Delivery List and the silver refinery of Republic Metals Corporation of the United States was added to the Silver Good Delivery List. Republic's gold refinery was accredited in February 2014.

There are now currently 73 refiners on the Gold Good Delivery List and 80 refiners on the Silver Good Delivery List.

COMMITTEES

Management Committee
The Committee worked with the Executive, the Regulatory Affairs Committee and the Market Makers group to ensure that the new LBMA Silver Price was successfully implemented as planned on 15 August. This was a monumental occasion in the history of the London bullion market, marking the end of the 117 years of the London Silver Fix and heralding the beginning of the solution provided by CME Group and Thomson Reuters. There are currently four price participants who have been accredited to contribute to the LBMA Silver Price: HSBC Bank USA NA, Mitsui & Co Precious Metals Inc, The Bank of Nova Scotia – ScotiaMocatta and UBS AG. Going forward it is expected that further participants will be accredited to contribute to the price in the coming months.

The London Gold Fixing Company Limited (LGFCL) announced on 16 July *"that with the support from the LBMA it has commenced an RfP (Request for Proposal) process with a view to appointing a third party to assume the responsibility for the administration of the London Gold Fixing"*. Since then, the Management Committee has been assisting the Executive in preparing for the next stages in this process. An online survey was launched on 4 September, and in parallel with this, expressions of interest were invited from potential solution providers, following which Request for Proposals were distributed to 13 participants, with a closing date for responses of 10 October. The next stage will be to hold a Market Seminar on 24 October. It is expected that a gold price solution will be chosen and be put in place before the end of the year.

The Committee is also considering the long-term strategy and structure of the Association. This is in view of the fact that its role as a trade association and market body has evolved over time. The LBMA's role in providing market infrastructure has increased from the Good Delivery accreditation to encompass benchmarks and now has a broader scope of work to contend with.

The Committee is also reviewing the work of the Sub-Committees below and assisting the PAC with finalising the arrangements for the annual conference in Lima, Peru on 9-11 November, as well as planning for the 2015 conference which will take place in Vienna on 18-20 October 2015.

Regulatory Affairs Committee
One of the main areas of work for the Committee has been co-ordinating with the Management Committee and Market Makers regarding the successful implementation of the LBMA Silver Price on 15 August. The attention of the Committee is now focused on MIFID, MIFIR and Basel III implementation along with the Gold Price consultation and RFP process.

The Committee has also been focused on benchmark regulation with regard to GOFO and the end-of day Forward Curves (administered on behalf of the LBMA by the LME). Due to a dwindling number of contributors, the decision was made to discontinue the end-of-day Forward Curves with effect from 22 September. This decision does not impact on GOFO, which will continue to be set at 11:00am each business day.

Another main area of focus for the RAC has been the Responsible Gold Guidance. For further information, please read the Regulation Update on page 24.

Physical Committee
In the last edition of the *Alchemist*, it was noted that the Physical Committee was monitoring a record number of Good Delivery applications. As can be seen from the list in the Good Delivery section, this work has borne fruit in the form of seven new accreditations, which is a record for reporting in a single edition of the *Alchemist*. Nevertheless, the number of applications that are being processed remains at a high level. They include two gold and four silver applications from refiners in four different countries. In addition, six refineries are thought to be preparing applications that are likely to be submitted in the next 12 months.

At its most recent meeting, the Committee approved some mostly minor changes to the GD Rules. These are listed in the preamble to the Rules, which can be downloaded from the LBMA website. The more important changes are, firstly, that silver GD bars may now, in principle, be manufactured using an induction tunnel system and, secondly, that the LBMA's specifications for bar dimensions shown in sections 8 and 9 of the Rules are now mandatory for new applicants and for refiners that make changes (of any kind) to their GD bars. The Committee has also asked the LBMA's referees to carry out a review of the assay criteria relating to GD applications and Proactive Monitoring based on the considerable volume of assay data that has been accumulated over the past decade, namely since Proactive Monitoring was introduced in 2004. Following completion of this review and consideration of the referees' recommendations, the Committee is likely to make changes in the criteria for the assay testing of applicants and for existing refiners being subjected to Proactive Monitoring.

Ensuring that the quality of GD refiners' large bars is fully compliant with the GD standard (both with regard to physical quality and the assay accuracy of the underlying metal) has resulted in the

Committee requiring three refiners to address such issues and take appropriate remedial action. In one case, a gold refiner was required to undertake the full 24 assay sample test used for new applicants and only after this had been successfully passed was the company's GD accreditation confirmed.

A significant part of the discussions taking place at each Committee meeting now relates to compliance, partly in relation to companies that are already on the GD List, but these discussions have focused recently on how the LBMA should ensure that refiners whose applications are accepted for technical assessment meet the regulatory requirements for listing. Similarly, monitoring gold refiners' compliance with the LBMA's Responsible Gold Guidance is now a staple part of the Physical Committee's workload.

Although monitoring GD applications represents the bulk of the Committee's work, it also has responsibility for a number of vault-related activities such as procedures for weighing. This includes the system for accrediting vaults as Approved Weighers. On 4 June, G4S Cash Solutions' new vault was listed in Annex F of the GD Rules as an Approved Weigher.

Public Affairs Committee
The PAC greatly assisted the Executive with preparations for the LBMA Bullion Market Forum, which took place in Singapore on 25 June 2014. Special thanks to Albert Cheng of the World Gold Council and IE Singapore for their invaluable support of this successful event. A review of the forum can be found on page 22. The PAC also worked with the LPPM in hosting the second annual LPPM/LBMA Cocktail Reception. This was well attended and preparations are taking place for 2015. The PAC is also considering when and where the LBMA will return to Asia, following the successful Forum.

The PAC has been concentrating on preparations for the annual conference, which will be held this year at the Westin Lima Hotel & Convention Centre in Lima, Peru on 9-11 November 2014. The programme for the conference was officially launched in the second half of August and can be viewed on the conference website which can be accessed via the Events section of the LBMA's website. The Committee is also making preparations for the Biennial Dinner, which will take place at the Guildhall, London on 1 December. Registration for the dinner will be announced shortly. The keynote speaker will be Lord Daniel Finkelstein, the Times Associate Editor and government policy advisor.

Membership Committee
The Committee continues to process a record number of membership applications, as can be seen from the Membership list summarised at the beginning of LBMA News.

The main function of the Committee is to ensure that the LBMA's Membership continues to maintain the high standards required upon application. This includes demonstration of active involvement in the London Bullion Market, passing KYC requirements and adherence to the NIPs Code. This is done both at the application stage and also, for Associates, by means of the Associate review system. The review used to be conducted on a three-year rolling programme, but in October 2013, the first annual review was carried out and this has now become an annual feature of the work of the Committee. The Executive also carry out reviews of Members and Associates on a case by case basis when more urgent issues arise (for example sanctions.)

The Committee continues to look closely at the sponsorship system, in particular the issue of due diligence carried out on Associates and also Good Delivery refiners, and in view of the regulatory pressures that everyone in the market is now experiencing, has taken steps to tighten the procedures used for Associate Reviews.

Finance Committee
The recent focus of the Committee has been to review the current year's Management Accounts, along with the budget for the forthcoming conference in Peru. Income has been supported by an ever growing number of membership and GDL applications. But costs this year have also risen, as a result of unexpected legal and consultation costs particularly relating to the consultation work on the silver and gold prices as well as increased staff costs to deal with the Association's ever growing workload.

Annual General Meeting
The 26th Annual General Meeting of the LBMA took place at Glaziers Hall, 9 Montague Close, London Bridge on Friday, 11 July. In addition to the formal business of approving the accounts and appointing the auditors, the meeting received a report from the Chairman and a summary from Ruth Crowell, Chief Executive, of the work of the five subcommittees.

This year, it was the turn of the four Ordinary member representatives to be elected (or re-elected). Grant Angwin, Johnson Matthey, Simon Churchill, Brinks Ltd and Jeremy East, Standard Chartered Bank were re-elected to the Management Committee. Robert Davis, The Toronto Bank Dominion, was elected to replace David Gornall, Natixis London branch plc, who resigned from the Committee (and accordingly stepped down as Chairman). The LBMA would like to extend its thanks and warm appreciation for the time, hard work and dedication that David devoted to the work of the LBMA throughout his three-year tenure as Chairman and prior to that six years as a member of the Management Committee.

The main news from the evening was that Grant Angwin, General Manager, Johnson Matthey was elected as the new Chairman of the LBMA and Steve Lowe was also re-elected Vice-Chairman of the LBMA. Grant has been a Member of the Management Committee since 2011. He has worked for more than 25 years for Johnson Matthey. For most of that time, he was based in the UK and held various positions within the refining business prior to being appointed Head of Sales at the Royston refinery in Hertfordshire. He relocated several years ago to Salt Lake City, USA as Sales and Marketing Director and shortly after that he assumed the position of General Manager.

LBMA Staff
The Executive is delighted to announce the appointment of Sakhila Mirza as General Counsel. Sakhila joined the LBMA on a permanent basis on 1 August having previously worked on a part-time basis since February, 2014 as a consultant on regulation related matters. Sakhila is responsible for all legal and regulatory aspects of the work of the Association. Sakhila brings with her a wealth of experience having previously worked in the energy commodities industry where she dealt with compliance and regulatory issues. Sakhila is a qualified Solicitor, with a degree in law from the London School of Economics.

The LBMA is sorry to announce the resignation of Emma Attridge, as the LBMA's Good Delivery Administrator. Emma's last day was 12 September and we would like to thank her for two years of exemplary service and wish her all the best for the future.

Market Moves

Steve Garwood and Russell Smith join Baird & Co

Steve Garwood has been in the metals markets for over 40 years, beginning with Sharps Pixley on both bullion and LME, and then with Credit Suisse in London and Tokyo, Shearson Lehman Bros., Bank of Nova Scotia and Barclays. Following a break from the market he joined Mitsubishi Corporation, and more recently was at the Mastermelt Group, before joining Baird & Co in their London office.

Russell Smith has over 20 years experience in the precious metals industry across Asia, Australia and the United States in a number of roles for Macquarie Bank and ScotiaMocatta. He is currently based in Singapore and leading Baird and Co's expansion into the Asia-Pacific region.

Giovanni Laureri joins Citi

On 1 July Giovanni Laureri joined Citi from UBS to head EMEA Precious Metals Marketing.

Yvonne Zhang joins CME Group

The CME Metals team has expanded with Yvonne Zhang becoming Director in Singapore.

Alisa Moen joins Dillon Gage Inc. of Dallas

Alisa Moen has joined Texas-based Dillon Gage Inc. of Dallas as General Counsel and President of International Depository Services Group of Delaware and Canada, the company's full-service depositories located in Wilmington and Toronto. Previously, she was a partner in the law firm Blank Rome LLP focusing on corporate and fiduciary matters.

Raphael Scherer, Arnd Gollan, Markus Weiss and Joachim Prior join Degussa Goldhandel GmbH

Raphael Scherer joined Degussa Goldhandel on 1 July 2014 as Chief International Officer (CIO) where he will focus upon the expansion of Degussa's international business. Prior to that, he was Managing Director at Chopard, the Swiss manufacturer of luxury watches and jewellery.

Arnd Gollan joined as of 1 July where he acts as the new Chief Operating Officer (COO) at Degussa. During the past nine years, Arnd was Head of Business Development and Product Management for Agosi AG (Allgemeine Gold- und Silberscheideanstalt AG).

Markus Weiss has also joined Degussa as of 1 August as the new Chief Financial Officer (CFO). He is responsible for finance, the middle and back office functions and systems. He spent several years with KPMG and most recently with Porsche Automobil Holding.

Joachim Prior joined Degussa as manager of the recently acquired precious metals refinery Schellhorn & Roth GmbH & Co. KG in Pforzheim, Germany. Previously, he worked as technical manager at PRIOR Engineering Services AG in Switzerland.

Metalor welcomes Philippe Royer as the new Group CEO

Philippe Royer, 52, has been appointed the new CEO of the Group. He has worked for more than 20 years in the metal-processing industry in operational and top-management positions, both in corporate and private equity environments, as Managing Director (Eurofoil), Business Unit President (VAW, Alcoa) and most recently over the past six years as Chairman and CEO of Manoir Industries, a leading supplier of cast and forged products to the aerospace, petrochemical and energy industries.

Patrick Hendry, Scott Sillitoe and Warren Swick join Prebon Premex London

Patrick Hendry moved from GFI to Prebon Premex. Patrick spent his last 15 years at GFI covering all Bullion products. He joins Prebon Premex as Head of Options to work out of their Dubai office. He will expand the precious metals option business with in the group.

Scott Sillitoe moved from GFI to Prebon Premex. After 17 years covering FX options at GFI in New York and Asia he will move to Dubai and focus on expanding their Precious Metals option business.

Warren Swick moved from BGC to Prebon Premex. Prior to joining he had been with BGC for 20 years, the last five covering Precious Metals. He joins their London desk to cover and expand their existing business.

David Spraggs retires from Sumitomo

After 34 years in the bullion market, and 40 years in the City, David Spraggs is retiring from Sumitomo on 25 September 2014.

Adam Finn and Oliver Watson join Triland Metals Limited

Adam Finn joined Triland Metals Limited on the 6 June as Head of precious metals.

Oliver Watson joined Triland Metals Limited on 1 May from Societe Generale as Precious Metals Dealer.

Changes at Heraeus, New York office

Miguel Perez-Santalla joined Heraeus Metals New York effective 30 June 2014, as the Sales and Marketing Manager. Miguel possesses over 20 years of experience in precious metal trading including seven years with Heraeus. With his knowledge of the business, he will drive the sales activities of Heraeus Metals New York by communicating and promoting various services that Heraeus trading can offer.

John Lawrence joined Heraeus Metals New York effective 8 September 2014, as a Trader. John has a Bachelor of Arts in Business Administration from Berkeley College and a Masters of Science in Finance from Baruch College. He started his career in Commodities Risk Management and Operations for Trafigura AG. John has spent the following nine years with Mitsubishi International Corporation working within Commodity Sales and Trading, precious metals department.

David Holmes joined Heraeus Metals New York effective 15 September 2014, as the Senior Vice President of Trading & Sales. David has over 30 years of experience working on commodity and precious metals trading desks with responsibilities including management, trading, sales and mine finance. Most recently, he held the role of Managing Director and Co-head of Commodity Solutions with Commerzbank AG in London.

LBMA Biennial Dinner 1 December 2014

The LBMA's biennial dinner will be held this year at the Guildhall, Gresham Street, PO Box 270, London, EC2V 7HH.

There will be a Cocktail Reception at 18.30 followed by dinner at 19.30. As usual, this will be a black tie event, and is open to Members, Associates and their guests. The guest speaker this year will be Lord Daniel Finklestein.

SECURED | INSURED | EFFICIENT

GLOBAL STORAGE

Private and Discrete, Non-Bank bullion depositories in Canada and the United States.

- Secure and fully insured allocated & segregated storage
- Private/Confidential
- Insurance underwritten by Lloyd's of London
- Efficient global distribution, daily reporting and tracking

IDS INTERNATIONAL DEPOSITORY SERVICES GROUP

Ontario, Canada: 855-362-2431 | Delaware, USA: 888-322-6150

LBMA ASSOCIATE • IIROC APPROVED (in Canada)

Independently-operated subsidiaries of Dillon Gage Metals, a precious metals leader for over 35 years.

Peru's Call

Editorial Comment by Dr Edel Tully, Executive Director, Global Precious Metals Strategist, UBS Ltd

Peru, for although it's a much longer trek from London than the hike up Maccu Picchu, our destination choice for the 2014 LBMA conference couldn't be more suitable in terms of its fundamental links to the precious metals market. Peru's history and culture are deeply linked with gold, and few countries have the same emotional relationship with the shiny metal as Peru undoubtedly holds. But gold has been both a blessing and a curse throughout its history. The Spanish hunt for gold 500 years ago has left its footprint to this day. And now, with Peru as the largest South American gold producer and the second-largest silver producer globally, the fortunes of its economy remain embedded in the precious metals sector. Leaving aside the historical lessons of the past, this year's LBMA conference will be a cosier event, with noticeably fewer delegates. The record attendance levels of recent years will not be repeated here – reflecting not only the long-haul destination but also the more challenging fortunes within the precious metals industry this year. The upside to fewer delegates is hopefully greater interaction and debate.

2014 has been a time of transition for the gold market. For the first year in more than a decade, gold is not a primary focus for investors; indeed, the tourist trade in gold is almost non-existent. There is a lot of consensus about the macro views, particularly on the US economy, and, in turn, gold's use as a macro barometer is quite watered down. Investor money has been channelled into equities at gold's expense, and this is not just a US phenomenon but it's also evident in traditional physical markets such as China. The industry has become quite accustomed to more than a decade of rising prices and high volatility, and adjusting from that state to the range-bound mode of 2014 requires considerable modification. Also, let's not forget that the majority of gold market participants are natural gold bulls; pull back the layers and the natural tendency for most is for an expectation of higher prices. Modifying to a new norm takes time.

> *"For the first year in more than a decade, gold is not a primary focus for investors; indeed, the tourist trade in gold is almost non-existent."*

A more sedate gold market, in the context of price action in previous years, will not take away from what should be an interactive and informative conference. This year, in response to delegate feedback, we've included fewer sessions to allow for more networking and meeting time. Panel sessions also feature more extensively, in an effort to foster greater interaction amongst the speakers and hopefully the audience.

This year's keynote speech will be delivered by Wolfgang Munchau, Associate Editor of the Financial Times. And we utilise Wolfgang's sharp intellect as chair of the investment panel session where he will cross-examine (in a friendly manner!) portfolio managers from Fidelity, Passport Capital and Redkite, along with Tom Kendall from Credit Suisse. While investor participation in gold this year is a slimmed-down version of that of previous years, that's no reason for us not to pull together some top talent from the investor community.

Central bank buying remains a key feature of the current market, and considering our location this year, the official section session includes South and Central American institutions. We also add in the Philippines for some geographical diversity and layer this session with a macro standpoint, through the inclusion of Natixis' Chief Economist.

> *"This year's keynote speech will be delivered by Wolfgang Munchau, Associate Editor of the Financial Times."*

The impact of lower gold prices is being sharply felt by the gold-producing companies, and the focus on cost control has intensified. Tuesday's opening session brings us deep into the world of metal production, and CEOs from Buenaventura and Hochschild Mining will share their insights. No doubt the audience will want to know about the potential for a return to hedging, not just in this region but globally.

The physical markets session includes a compendium of top talent, with focus on both the demand and supply side, from India to China, South Africa and the refining world. How much can South African platinum production recover in the next 12 months? Will India ever ease import restrictions? What's the end destination for all the gold going into China? Let's challenge the experts.

The panel session this year, tasked with addressing key topics facing the precious metals, featuring Jon Spall, Roque Benavides, Katarina Cvijovic, Sean Russo and Amrik Sandhu, is likely to be a very interactive session considering the historical market changes that have occurred this year. Typically, this is one of the most popular sessions of the conference.

The wrap-up session this year, starring the very outspoken John Reade and the often controversial Ross Norman, is likely to be a very lively affair. The task for John and Ross is not to plainly summarise the sessions, but to do a deep-dive into the areas that are most informative and most intuitive. This dynamic duo, in their own unique and colourful styles, will present us with the need-to-know takeaways from the conference. And if John and Ross have a little squabble along the way, then this only adds to the audience's entertainment value!

While many man-hours of the LBMA Executive this year have been dominated by changes to the fixings, here in Peru, it's back to basics – converging in one location to debate the topics du jour. The Public Affairs committee members have worked hard to pick the right speakers, and I must thank them for their efforts. It's a challenging task – in December, we start with a blank piece of paper and dream up ways we can make the conference better. Hopefully, this year's line-up does just that.

Edel Tully,
Executive Director, Global Precious Metals Strategist, UBS Investment Bank

Edel Tully is UBS Investment Bank's head of precious metals strategy, with responsibility for forecasting and publishing research on the precious metals complex.

Edel holds a PhD from Trinity College Dublin (2006), awarded for her thesis 'A Tripartite Investigation of the Gold Market: Pricing Influences, Intraday Patterns and Daily Seasonality', and a Bachelor's degree in Business Studies from the University of Limerick (2002). She is chairwoman of the Public Affairs Committee of the London Bullion Market Association (LBMA). Prior to joining UBS in January 2010, Edel was head of precious metals research at Mitsui and Co. Precious Metals Inc., a role she held from 2006

facing facts

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS

Some 18 months after the first of two big down-legs in the gold price, producers have continued to announce sweeping changes in order to adapt their companies to better suit the lower price environment into which they now produce. In the last two weeks, announcements have included Polymetal International's plan to streamline its project development pipeline and commit to just one major capital expenditure programme, the Kyzyl project in Kazakhstan that it acquired earlier this year, with other projects mothballed. More recent news from South Africa was the announcement that AngloGold Ashanti is exploring the possibility of a corporate restructuring that would see its international assets spun out into a separate vehicle, coupled with a capital-raising to reduce its debt. Although these are the most recent obvious examples of ways producers are re-aligning their businesses, there are numerous others one could cite over the past year.

Stepping back from isolated corporate actions of the past fortnight, producers' proactive strategies to evolve have been plain to see in the headline mining metrics detailed in GFMS' recently released ***Gold Survey 2014 – Update 1.*** Taking a couple of extracts from the report, mine production increased by 4% year-on-year in the first half of 2014. One of the key factors was a handful of significant projects coming on line, those being the product of investments made during the prior years of higher prices and now ramping up to full capacity. Though these developments were clearly important, equally important has been a much broader base of operational changes brought about by many mining companies in response to the 15% average year-on-year drop in the gold price. Nine of the top ten mining companies (see table 1 above) increased production year-on-year, with Barrick's drop in output largely a consequence of its sale of non-core assets. Based on current data, mine production for the full year is expected to clear 3,100 tonnes. In the first half, Total Cash Costs decreased by 6% year-on-year, to $736/oz, indicating that miners have had some success in cutting costs at the mine site, often thanks to lower unit costs on higher production, coupled with efficiency improvements. Although many producers may continue to shun the phrase "high grading", improving grades have been a key feature of this turnaround. However, these efforts have not kept pace with the fall in the gold price, and a comparison of simple margins year-on-year shows a 25% reduction. Although this has not yet resulted in conditions sufficiently hostile to have a detrimental effect on global mine supply, the evidence points to a gold mining industry in a fundamentally unhealthy state. That said, closures or suspensions have so far been limited to small or ageing operations, with the bigger hit to major development-stage projects as part of a drive to reduce non-essential capital spending.

Many of these strategic changes relate to the gold grade of ore mined and processed – 2014 showed the first year of increase to the global average grade processed for more than a decade. This represents a logical response to mine planning by companies' mining engineers and reserve consultants, whose ultimate aim should be to maximise the long-term value of a deposit based on the management's view of long-term prices. Times of exuberant prices naturally led to resources within a mine's lease being scrutinised, with a view to proving-up and converting resources (where feasible) to reserves and building this into mining plans. With prudent producers' aims ordinarily being to maximise the long-term value of assets, this in many cases would involve mine life extensions. As a consequence, we have seen initiatives at mines include major new waste stripping programmes to facilitate additional pushback developments and underground drives into lower grade sections of ore bodies. Such initiatives will now be fewer and farther between. Reserves in many cases are being downgraded to resources as reserve cut-off grades are lifted, with accountants writing down the carrying value of many assets. At GFMS, we have written about this trend and relationship before. The interesting new angle though is that we now have evidence from producers' results so far this year to indicate with confidence that the trend has turned the corner for the full year 2014; the point of inflection was 2013, and based on the analysis of granular data from GFMS Mine Economics on Thomson Reuters Eikon, we expect the weighted average gold grade that producers process in 2014 to come in around 5% higher year-on-year at 1.36 g/t. In Fergal O'Connor's analysis of GFMS cost data on page 17, he identifies the strong statistical link, concluding that price drives miners' total cash costs. GFMS' mining team at Thomson Reuters would concur and argue that the wide array of levers at the hands of producers (to rein costs in and infrequently used in the bull run) are now being showcased in order to adapt and sustain businesses in this more challenging price environment.

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS

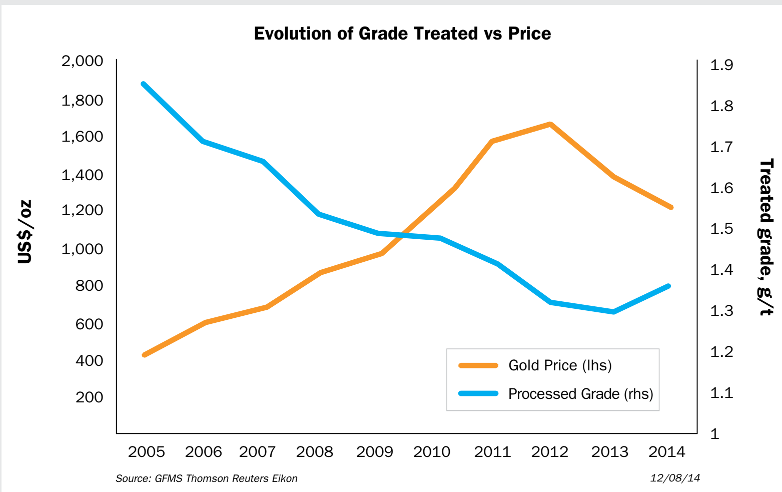
Having joined GFMS Ltd as a Metals Analyst in 2005 to cover the mining sector, William was brought across to Thomson Reuters in GFMS' 2011 acquisition and holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. He has accountability for the mining team's research output of global production, mining costs and producer hedging research across the precious metals.

H1 2014 Top 10 Gold Producers (tonnes)

	2013.H1	2014.H1	% change y-o-y
Barrick Gold	112.2	95.6	-15%
Newmont Mining	72.6	75.6	4%
AngloGold Ashanti	57.0	67.0	17%
Goldcorp[1]	39.2	41.3	5%
Kinross Gold[2]	38.3	40.7	6%
Newcrest Mining	36.0	37.0	3%
Navoi MMC[2]	34.0	36.0	6%
Gold Fields[1,2]	26.7	31.6	18%
Polyus Gold International[3]	22.3	23.2	4%
Sibanye Gold	20.4	22.1	8%

1 Includes Discontinued Operations
2 Estimate
3 Including Veduga

Source: Company Reports; GFMS, Thomson Reuters



PAMP®

Produits Artistiques Metaux Precieux

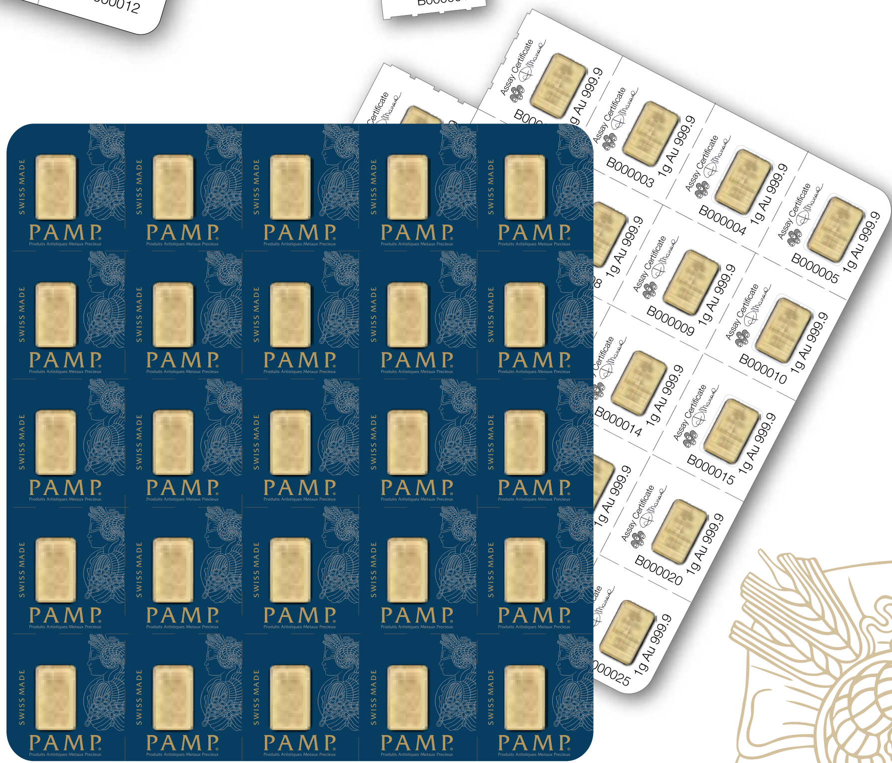
MULTIGRAM+12

For the bullion enthusiast.
Or to gift.

Exceptionally PAMP.

The latest in PAMP innovation has arrived, beginning with the MULTIGRAM+12 and MULTIGRAM+25 bullion sets. Each set's respective quantity of 1-gram Fortuna ingots is packaged within interconnected, securely sealed CertiPAMP units, which may be snapped off from the set while maintaining their unique certification, individual numbering and identity.

MULTIGRAM+25



SGS

The Art of Precious Metal Transformation®

LBMA

LPM

PAMP SA
6874 CASTEL SAN PIETRO SWITZERLAND
TELEPHONE +41 (0)91 695 04 50 FAX +41 (0)91 695 04 51
E-MAIL INFO@PAMP.COM WWW.PAMP.COM

Alchemist

LBMA
The London Bullion Market Association ISSUE 76 January 2015

In this issue

The photo shows silver grain. 2014 proved to be a momentous year for the London Precious Metals Market. Silver features prominently in this edition with articles by Daniel Marburger on page 20 and William Tankard on page 34. The LBMA Silver Price and other precious metal benchmark prices are also featured in LBMA News on page 28 and the Editorial by Grant Angwin on page 33.

SBERBANK CIB

Your reliable Russian partner in precious metals

Financial services are provided by CJSC “Sberbank CIB” and also parties contracted by CJSC “Sberbank CIB”
4 Romanov Pereulok, Moscow, 125009 | Tel: +7 (495) 258-05-00 | www.sberbank-cib.com | Sberbank of Russia
General banking licence issued on August 8, 2012. | Registration number 1481.

Inflated Threats: The Eurozone Crisis and the Challenges Going Forward

By Wolfgang Münchau, Associate Editor, Financial Times

This is a transcription of the keynote Macro-economic speech delivered by Wolfgang Münchau at the 2014 LBMA Conference in Lima, on 10 November 2014.

The LBMA conference for the industry is an excellent opportunity to reflect on some of the major issues affecting the Precious Metals market. The Eurozone crisis matters in your industry, because the way the scenarios develop will impact market prices. It will have a huge ramification as well for the global economy.

This is not the first crisis. When I grew up in Europe in the 1970s, there was a joke about the EU and how dysfunctional it was. A European nightmare in which the British were in charge of the cooking, the French were the engineers, the Swiss the lovers, the Germans the policemen and the Italians responsible for making the trains run on time.

We have come a long way since then and my modern version of this European nightmare is a Europe where Germany saves, even though it has the capacity to invest and to use fiscal measures to make adjustments to the economy. It is a Europe where France and Italy use fiscal capacity they don't have. Europe has a single currency but its governments refuse to do all the things necessary to make that single currency work.

The problems in the monetary union are generally put down to fiscal irresponsibility, but a lot of adjustments happen in the economy when you forge many countries – it is now 18 – into a single currency.

These are not just fiscal, there are also private sector flows. With the labour markets being unco-ordinated, all functions of the economic policies are essentially national, under national political control, especially the structures of markets. Despite the single market rules, which provide some minimum standards for product markets, all the other factors have been left to national control.

During that period, Germany started an improvement in the real exchange rate, which is the key thing that happened. This wasn't that big of an issue in the first five years of the last decade, but with labour market and welfare reforms, the wage demands are moderated against the rest of the Europe. It made Germany more competitive in one respect, which meant large export surpluses and its counterpart large saving surpluses. Last year, Germany's current account surplus was 8%, which is high. It will be similar this year. You can explain some of it through the fact that Germany is an aging society, which will be a demographic shock. Germany should probably run a current account surplus but nothing of that size. It cannot explain an imbalance as big as 8% of GDP.

"Europe has a single currency but its governments refuse to do all the things necessary to make that single currency work."

When you have these massive differences in the current account balances between member states in a monetary union, you don't get a balance of payments crisis, which is what you would normally get if the counterpart were deficits in other countries. You would get a credit crisis. So the excessive wage moderation in Germany was purely selfish, perfectly legitimate and a politically legitimate policy. You want to be competitive and have full employment; you can't really blame anyone for that. This is the same in every other Eurozone country; they acted rationally, it was not irrational behaviour.

We then got a financial crisis, not a balance of payments crisis but credit crisis. We have a private and public sector credit crisis. The latter was probably avoidable in some instances – certainly in Greece – but in the private sector crisis it was not. The German surpluses had to go somewhere. They were invested, usually at negative returns on investment. And private sectors in other Eurozone countries spent too much. That wasn't the result of some behavioural error; it was the result of a system that has imbalances.

Afterwards, Germany agreed to bankroll the system. That wasn't clear in the beginning because Germany was in a favourable position, it is a rule-based system. The no bail-out principle was enshrined in the treaty. Partially giving up on that was a big deal. They came to an agreement of having a bail-out treaty, the European Stability Mechanism (ESM), which was set up by a treaty among the participating members and became the blueprint. We bail you out, but you have to fulfil some criteria. We're sending in the IMF, the ECB and the European Commission to oversee that you're doing all the necessary adjustments. But it became also the kernel for why things have gone wrong subsequently. If you're in a situation like that, the ideal adjustment for Germany is to accept higher inflation. This is now looking at it not from a German perspective but from a global perspective. And that's what the Americans, the IMF and everyone else is saying: the ideal adjustment is for Germany to accept higher inflation, say 3% or 4%, and for the other Eurozone members to have slightly lower inflation so that we're kind of reversing the process of the last decade and trying to achieve some normality. This is not happening. The opposite is happening because Germany is not inflating. Germany is very much in the mid-range in the Eurozone with regard to inflation rates, which are very similar to the core of the Eurozone. Therefore, the other member states are adjusting. The south is adjusting through deflation, and we see negative inflation rates in southern Europe and Germany having inflation rates of around 1%, which is below the ECB's inflation target of 2%.

Even the strongest economy is still inflating at only half the target rate, which is the reason why we are so concerned about inflation.

As such, the Central Bank would normally act to address the imbalance. It could pretty much solve the problem; however, it cannot do so when inflation is at the zero lower band. That's a global scenario. We're all at the zero lower band so this kind of thing couldn't have happened at a worse time, when monetary policy is unusually constrained. And there are additional constraints placed on the European Central Bank – all sorts of laws that others don't have. It is not the central bank of a country but of a monetary union. There are lots of things the ECB is not allowed to do that other central banks find easier to do.

What do we do now? It's been talking about QE for the last 12 months and say it is ready to implement it. In reality, we know it doesn't have it in place. Things first have to get worse for it.

The photo shows Mario Draghi and the German Finance Minister, Wolfgang Schäuble.

This is probably the reason.

I was recently in Berlin talking to Schäuble and he made it clear to me that this is the red line.

Everyone you talk to in Germany tells you that QE is the red line. We've been willing to go along with the bail-out mechanism, but this is a real red line. We'll see what happens when it is breached, which I believe is going to happen. The Germans are holding out on the system. The reason we don't have QE is because of Germany.

Draghi wanted to bring Germany on board with all his policies; he outvoted Germany on interest rate cuts and on his famous official outright monetary transactions (OMT), the programme introduced two years ago that stabilised the financial system and ended the acute phase of the financial crisis, his backstop guarantee. The Germans were opposed to it, so was the Bundesbank, but not the government. On QE, it's going to be difficult. Draghi didn't want to force the issue earlier, at a time when he would have alienated Germany to an extent that there would have been an irrevocable breach of trust.

In January, there will be a court case on the OMT programme. My expectation is that the European Court of Justice will give the green light. That will encourage the ECB, given that the legal arguments are clear, so I expect that in the first quarter of 2015 we're going to see a QE programme. I'm not very enthusiastic about it, although I am in favour. However, the QE programme will probably be 500 billion euros, which is small. The Eurozone is almost the same size as the US in terms of annual economic output, but the US QE programme was three or four times as large as the EU programme will be.

Of course, in Europe, when we decide something controversial, we don't go 100% nor 0%. Draghi will say we have QE and the Germans will claim we don't have it. When the announcement is made, you will spend quite some time interpreting what you've actually heard.

How will it work? 500 billion euros isn't going to make a big shift. There is a valid argument against QE relative to the US and the UK. The European economy is much more bank based, so a lot of the financial instruments whose interest rates you will manipulate through the programme matter less to the Eurozone economy than they would have mattered to the US. The main channel for the Eurozone will be the exchange rates, but don't get too excited about that either. The reason is that people always focus on the dollar-euro rate, which has gone down significantly. But the nominal exchange rate effect, which is the one that matters, hasn't moved as much. This is because the yen has depreciated against the euro, the other European currencies are fairly stable, as is the pound, but the Swiss franc is certainly not – it is not revaluing against the euro. Many of the currencies are fixed. Italy gained a boost when installing the exchange rate mechanism in the 1990s, but there needs to be a 30% devaluation in the currency for Italy to get the same kind of effect through a euro devaluation. As an example, the euro would need to devalue by 60%, but it's not going to happen. It would be like a 60 to 70 cent devaluation in the dollar; this is just too big, the reason being that the US is a large economy.

The Eurozone is in many respects similar to the United States. The exchange rates are not completely irrelevant, but it's not as important as it would be for a small island economy. And since the Eurozone consists of 18 mostly small countries, everybody talks about the exchange rate as though it was the exchange rate of 18 small open economies, when it is the rate of a large closed economy. The latter is very different in its behaviour from that of small countries.

If you wanted to make QE work, you would probably have to do more – not just buy more but also use other channels than the exchange rate. My favourite channel would be an expectation of the future. We could shift inflation expectations by changing the inflation target. One thing you could do, and that would still be in line with the treaties and with our 2% inflation objective, is a price level target. Not an annual inflation rate but a long-term price stability objective, which would mean that even if inflation rises, if that were to happen in the next ten years, we wouldn't stop this programme immediately. People always fear that when inflation arrives, the ECB will be the first central bank to break, which will impact on the programme, knowing that they don't give you a target, they don't give you a guarantee about how long or how much they will buy and for how long. This will impact confidence. The way to boost it would be to introduce some kind of target change. Now that's not going to happen. I understand they discussed it on the governing council and, for the moment, it has been rejected. The question is: what will happen if QE is put in place but doesn't work?

Pablo Iglesias

The photo is a man from Spain, Pablo Iglesias. Why this is dangerous for Europe is that it's already a 'secular stagnation' we're falling into. This recovery we were supposed to have seen isn't happening. This fact is more dangerous than the financial crisis when the central bank stepped in and ended it. What we're now seeing is the financial crisis translated into an economic crisis because of the way we have reacted to it and all the constraints we have imposed on ourselves. This economic crisis is not just a malaise; we're not like Japan with zero growth rates and a country that's still functional. We will have a lot of insurrection and political discontent, especially in the countries that are affected.

Spain is a good example of a country that had two very strong parties – the centre left party and the centre right party, which has dominated the political spectrum since the democratic revolution of the 1970s. There have been no other serious political players in Spain except for this party until Podemos. Its foundation was not that long ago and it is now leading in all polls.

Mr Rajoy

The above is a photo of Mr Rajoy a talented sociology professor, who is probably of the new breed of leaders to be taken most seriously. We're going to see political issues arising that

we haven't seen before. Will Mr Rajoy be the Spanish prime minister at next year's election? It looked a pretty certain prospect even six months ago but is now much less clear. People are talking about a grand coalition, which is bad news because that's the best recipe to encourage opposition. Rajoy will then be the opposition leader and that will change the politics of that.

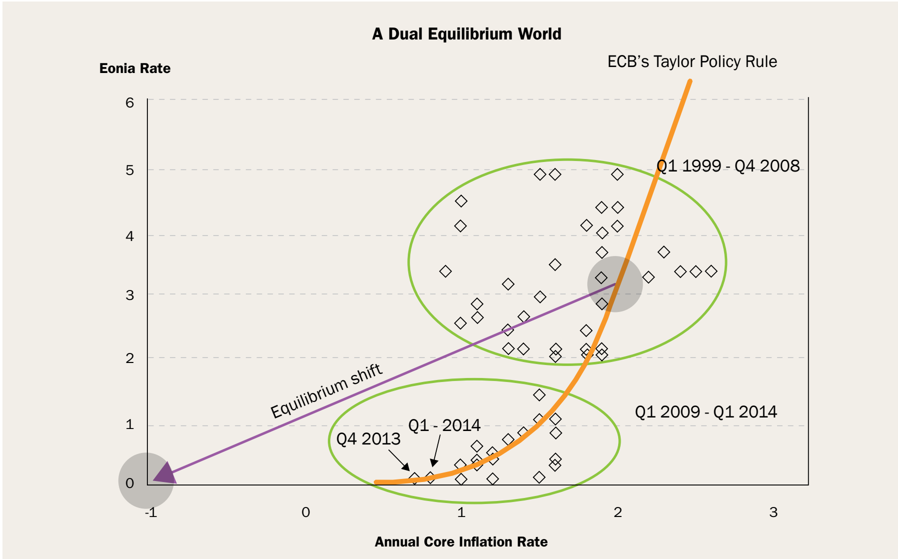
Alexis Tsipras may become the next prime minister of Greece. He is leading in the polls and the government is not looking good. I don't take him as seriously as Podemos because I think he will ultimately do what his predecessor did. He has a different rhetoric, his party is clearly different, but he's very much part of the policy consensus. He's not nearly as radical as he appeared to be two years ago, so I would expect him to present a different style; however, I'm not sure whether the substance will be all that different.

Casaleggio (left) and Beppo Grillo (right)

The above photo shows two Italians, Casaleggio and Beppo Grillo. Beppo Grillo is the party leader of the Five Star Movement in Italy. Casaleggio is the intellectual and financial power behind the party. They believe that Italy should leave the Eurozone. This was the party with the most votes in the last election, but because in Italy you have parties forming pre-electoral coalitions, it isn't even the main opposition party in the parliament. The main opposition party wants to exit from the euro. That's different from the consensus 10 years ago when both the government and the opposition consistently supported the euro.

Marine Le Pen said that if she becomes president of France, the first act in office will be to instruct the Treasury to leave the euro. I don't think she will become president of France at the next election because these political changes take a long time to come to fruition. There are many things that could happen between now and the next election; for example, Hollande might not run and therefore she might not face him but someone from the conservative party. There may be political developments and intrigue, but it's already telling us that the National Front is leading in the polls, which is completely new. While I don't expect her and Grillo to become the next generation of leaders, Podemos and Tsipras, Iglesias and Tsipras are more likely challengers.

This would change politics, just as oppositions change politics. When the opposition is against the euro, you're going to be more careful. The same is happening in Germany with the anti-



Source: Eurostat, Deutsche Bundesbank, own calculations

euro party. The effect will not be that the party gets into power – it won't – but it constrains the government's ability to say 'no' in public and 'yes' in private, to be pragmatic. We've heard Germany saying no to QE, no to fiscal expansion and so on.

This chart above shows 'secular stagnation'. It plots the annual inflation rate and the interest rates on the left, which asks the question: how high does the interest rate have to be, the Eonia rate being a short-term rate, for inflation to be at a certain level? The upper circle is the old Eurozone world and various years. The dots represent the years before the crisis. Inflation was generally between 1% and 2%, between 1% and 3%, usually it's sort of centring, averaging on 2% in the upper circle, and the interest rate was around 4%, between 2% and 5% but sort of averaging 3% to 4%. That was the pre-crisis world. In economics, you have this equilibrium, meaning things get out of sync but all sorts of market forces bring it back into balance again. This is precisely what happened. We have moved towards a different and lower equilibrium. The reason is the zero bound interest rate.

What does it all mean? I don't want to propose a hugely stagnating Eurozone; there are various scenarios possible: Eurozone stagnates, Japan stagnates, China is slowing down, you can get pessimistic and think gloom and doom forever. Or we have a deflationary scenario but are going to do much about it – unlike the Japanese – and our financial system works very differently from that of Japan in the 1990s. We could have a scenario where deflation, or 'lowflation' as the IMF calls it, is followed by inflation. Or we could have five years of lowflation and then so much cash in the system that it eventually leads to growth, which then might become inflationary.

We could have a decoupling scenario where the Eurozone does what Japan did, but the rest of the world isn't following, it is not affected and finds its own way. That depends on how well the rest of the world can absorb the current account surpluses of Europe, which it is running now, and whether it has the capacity to absorb them and overcome the global shock that comes with it.

These are the three scenarios that stem from it. I believe it would slow down the world for a certain period of time but not forever. It is a classic economic shock to the world; however, the global economy is going to be fine with that. I'm not that optimistic about the Eurozone itself. But that is another story...

Wolfgang Münchau, Associate Editor Financial Times

Wolfgang Münchau, 49, is associate editor and European economic columnist of the Financial Times. Together with his wife, the economist Susanne Mundschenk, he runs eurointelligence.com, an internet service that provides daily comment and analysis of the euro area, targeted at investors, academics and policy makers.

He was one of the founding members of Financial Times Deutschland, the German language business daily, where he served as deputy editor from 1999 until 2001, and as editor-in-chief from 2001 until 2003. FT Deutschland is now a firmly established player in the German media market with a daily circulation of more than 100,000 copies sold.

Previous appointments include correspondent posts for the Financial Times and the Times of London in Washington, Brussels and Frankfurt. He was awarded the Wincott Young Financial Journalist of the Year award in 1989. He holds the degrees of Dipl-Betriebswirt (Reutlingen), Dipl-Mathematiker (Hagen), and MA in International Journalism (City University, London).

He has published three German-language books. His book *Vorbeben*, on the financial crisis, has received the prestigious GetAbstract business book award in 2008, and is now published by McGraw Hill in the US.

Mining in Peru – Country of Opportunities

By Eva Arias Sologuren, President, Sociedad Nacional de Mineria Petroleo & Energia

This is a transcription of the welcome address delivered by Eva Arias Sologuren at the LBMA Conference in Lima, on 10 November 2014.

When I was thinking about what to talk about this morning, I was thinking about talking about this 'super cycle' and the prices. Then, I realised that we already have the experts here today and tomorrow to cover that. So, I decided it was better to talk about mining in my country.

As you know, Peru is a mining country and has a varied geography, biodiversity and natural resources. We have world-class geology as well as a very rich cultural diversity. And one of the results of that is our gastronomy, for example.

Today and for the past 15 years, our economy has remained very stable. We have a GDP that has been growing year by year and inflation is at a very low rate. Investment has also been increasing every year and, more importantly, poverty has been reduced dramatically from 2004. We went from nearly 60% to less than 24% last year. So we would like to keep this going in this way.

Inflation forecasts
Peru has always been a mining country. Before the Incas, our people knew how to work gold, silver and copper, and they knew their metallurgy. This continued in all our history up until today as can be seen in our world-class modern operations. This drives our country to be a really big player in several minerals. We have polymetallic producers and, as you can see in the projection, in copper and silver we are second in Latin America, and in the rest of minerals we produce, we are first.

We also have a great amount of the world reserves, 10% in copper and zinc, 17% in silver. So we really have great potential as a mining country. Mining GDP has a direct effect on the national GDP as you see in the graph. The mining industry also contributes to tax revenue. It's a very important source of tax revenue; last year, it was 15% of the total corporate income tax in the country. Fifty-five per cent of our exports come from mining, and 23% of the private investment comes also from mining. It is a very big player in our country.

Net International Reserves
I would like to stress two points. One is employment. Last year, we had 208,000 employees in mining, and for each worker that we have, nine other jobs are created in other sectors. The other point is domestic procurement. Mining buys 14% of the Peruvian manufacturing industry gross value added. So it drives and dynamises the economy a lot.

But mining is not only about exporting minerals or paying taxes. We are going to have at the end of the year, the UN climate change conference in Peru and the mining industry has been working on climate change mitigation and adaptation projects. These works are in reservoirs and water recirculation, irrigation technology, canals and reforestation, and there is a lot of work in conserving the biodiversity that we have in the country.

Mining Investment
We do this without neglecting our social responsibility, which includes programmes for the promotion of productive development and for the improvement of the education and health of the communities surrounding the operations. Looking at the future, Peru has a lot of potential. Over 30% of the land is available for mining and only 1.2% of our territory is used in exploration and exploitation. So there is a lot that can be done in the country in mining.

Table 1: Inflation Forecasts for Latin American Countries (annual % change).

Inflation is expected to remain in the target range, and remain at around 2%.

Country	2014	2015
Peru	3	2
Colombia	3.3	2.9
Ecuador	3.6	3.2
Mexico	3.9	3.5
Chile	4.2	3.7
Paraguay	5	4.5
Brazil	6.3	5.9
Bolivia	7.1	6.2
Uruguay	8.4	7.5
Argentina	29.3	27.7
Venezuela	68.5	57.5

Table 2: Peru Net International Reserves

The Peruvian economy has high levels of international reserves in comparison to other countries in Latin America. (see also Table 3)

Country	US $ billions
2007	27.7
2008	31.2
2009	33.1
2010	44.1
2011	48.8
2012	64
2013	65.7
2014*	64.7
2015*	65.7
2016*	67.7

Table 3: Peru Net International Reserves: Coverage Indicators

As % of:	2004	2009	2014*
GDP	19.2	27.2	31.1
Short-term external debt	171.8	297.1	760.5
Short-term external debt plus current account deficit	173.2	281.6	350.1

Source: BCRP. *Forecast

Table 4: Mining Investment in Peru

Year	Billions US $
2000	1.5
2005	1.1
2010	4.1
2011	7.2
2012	8.5
2013	9.7
2014*	8.4

Source: MINEM, *SNMPE estimate

Investment Portfolio

We have an investment portfolio of over US$61 billion and that means over 50 projects in different metals. Nearly 64% of those are in copper, 13% are in gold and 12% are in iron. And in the upper part of the slide, you can see how the mining investments have been doing in the past years. They are growing and growing. However, this year has not been a good year. We expect it to be broadly similar to 2012. We have a few projects that are being constructed now and that explains this amount of investment.

We are the third-largest copper producer in the world. Copper is mined mainly in the south and in Ancash, which is in the north of Peru. And production has been growing, as you can see. This year, it is also going to grow and next year as well. We have expansion plans as well as new projects and exploration activities. This represents nearly US$40 billion in investments in copper. Even if this is a precious metals conference, I cannot leave copper out because it's the main metal that we export.

Table 5: Investment Portfolio

More than 50 projects US$61.3 billion

Metal/mineral	%
Potasium	0.2
Tin	0.3
Zinc	0.8
Silver	1.2
Phosphates	3.1
Polymetallic	5.9
Iron ore	11.6
Gold	13.4
Copper	63.6

Source: MINEM (June 2014)

In gold, we are the fifth-largest producer. This metal is mined mainly in the northern part of Peru, in Cajamarca and La Libertad. And in this case, our mine production has not increased since 2005. It's going down. We hope that with new projects, this trend can be turned around in the next few years.

In silver, production is going well and we have this metal as a by-product in many mines. This is a very important product. We are the third-largest producer in the world.

Table 6: Mining Production in Peru

	Production (millions of tonnes)		Production Ranking		% of world reserves
	2000	**2013**	**World**	**Latin America**	
Copper	553,924	1,375,641	3	2	10
Gold	133	151	5	1	4
Silver	2,438	3,674	3	2	17
Zinc	910,303	1,351,273	3	1	10
Lead	270,576	266,472	4	1	8
Tin	37,410	23,668	3	1	2

Source: MINEM, USGS

Mining Production

As we all know, we are now in a very uncertain and volatile world where many economies have not been doing well. They are not growing as they used to do some years ago. And the prices are also going down. We can see that in the case of gold between October 2011 and October this year, price dropped 26%, and in the same period, it fell 46% in the case of silver.

Furthermore, costs are high. They have been getting higher year by year. You can see in the upper part of the slide that in South America, the estimated average mining project cost overrun has been 64% in the last few years and, in the lower part, you can see that the cost of copper has also been going up. But in the blue line in the lower part of the graph, we have Peru, which has very competitive costs, mainly because of our electricity costs. This is very important for being competitive in the world. The cost of gold has also been increasing year by year in different parts of the world.

Our economy can deal with the uncertainty and volatility that we are having in the world these days, because we have very solid macro-economic fundamentals: our international reserves have been growing and are high in comparison to other countries in Latin America. And inflation in our country, which is the lowest in the region, is expected to remain in our Central Bank's target range in the next couple of years. Our exchange rate is also not as volatile as that of other countries, so we are in a better shape.

Looking at the future, we have geological wealth, our costs are competitive even in this context, but we have a lot to do. As mining companies, we need to increase productivity in our operations. After such a long super cycle of good prices, we sometimes forget about what productivity means.

As a country, we need to strengthen our institutions. We need to ensure that our social environment is favourable to the development of productive activities. We need to simplify our administrative procedures. We need to accelerate the construction and improvement of transport and services infrastructure. We need to have a more formal economy, especially in our sector, where eradicating the illegal extraction of minerals is an important challenge.

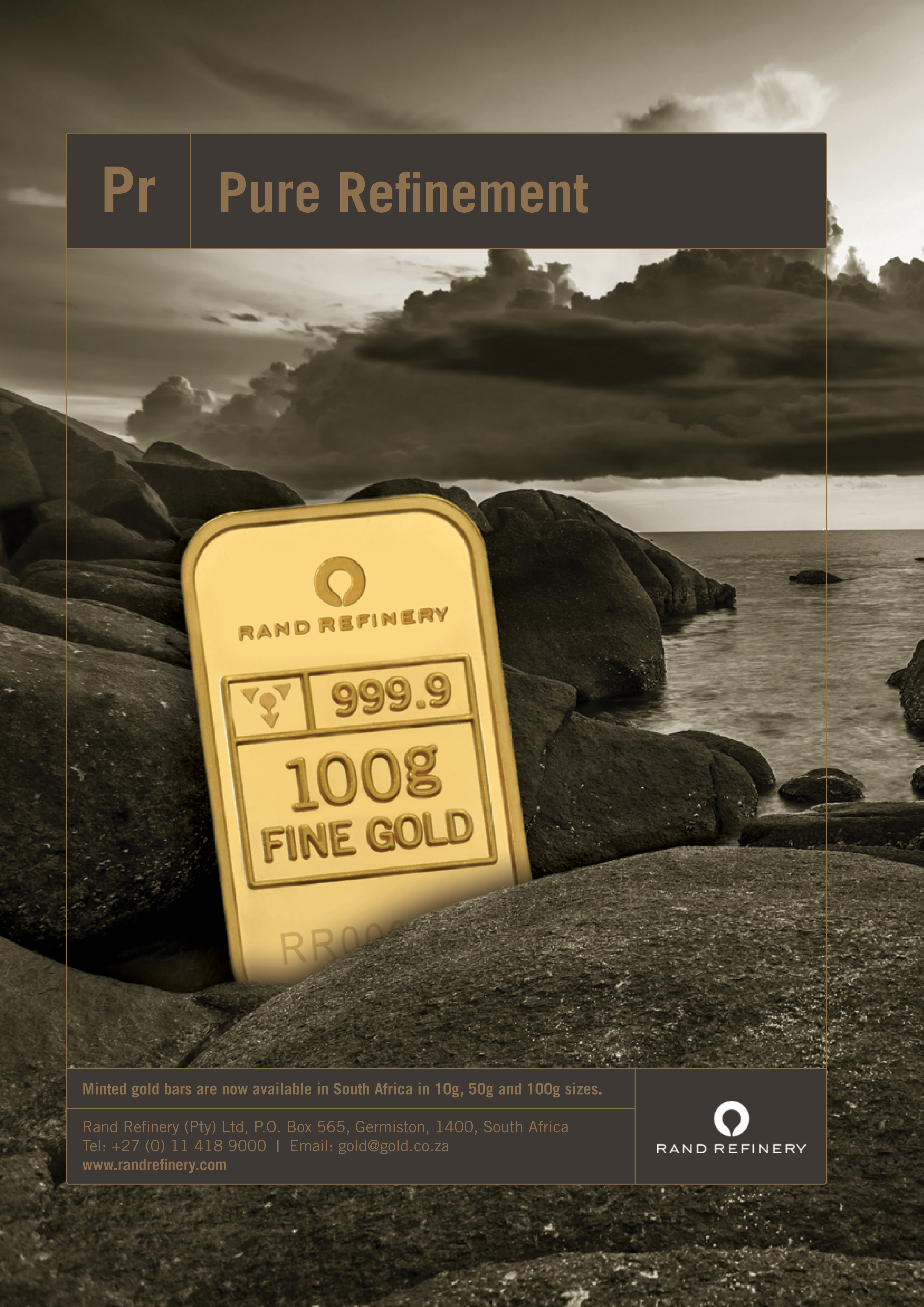
As I mentioned, Peru is a country of opportunities. We have a mining investment portfolio of over US$61 billion and, if we all work together, we are going to add value to these resources.

Eva Arias Sologuren, President, Sociedad Nacional de Mineria Petroleo & Energia

Eva belongs to the third generation of a mining family. She graduated as an architect at the National University of Engineering, later studied various courses on business management at ESAN (Perú).

Currently, she is President of the National Society of Mining, Petroleum and Energy, being the first woman in 117 years to preside over this institution; President of the American Society of Mining (SIM), Director of the Confederation of Private Business Institutions (CONFIEP) , Member of the Business Advisory Council of the International Freedom Foundation, Executive Chairman of the Board of Compania Minera Poderosa SA, Alternate Director in Company Minera San Ignacio de Morococha SA and President of the Board of Asociación Pataz, which is a non - profit organization.

Throughout her career she has received several awards, the most recent are: "Entrepreneur of the Year 2013", granted by the Chamber of Commerce of La Libertad; the distinction "Habich Torch" from the National University of Engineering (2013); Wayra of the Incas by the Association of Professional Engineers of Peru, Chapter Metallurgy and Engineering (2013). Lately, the National University of Engineering awarded her the honorary tittle "Doctor Honoris Causa" (2014).


Pr
Pure Refinement
RAND REFINERY
999.9
100g
FINE GOLD
Minted gold bars are now available in South Africa in 10g, 50g and 100g sizes.
Rand Refinery (Pty) Ltd, P.O. Box 565, Germiston, 1400, South Africa
Tel: +27 (0) 11 418 9000 | Email: gold@gold.co.za
www.randrefinery.com
RAND REFINERY

The Good, The Bad and The Ugly: Challenges Facing PGMs in South Africa

By Stuart Murray, Chairman, Sylvania Platinum Ltd

This is a transcription of the speech which Stuart Murray delivered at the LBMA Conference in Lima on 11 November, 2014.

Mogalakwena platinum mine in South Africa

I'm going to give you a flavour of the situation that the gold and platinum miners face in South Africa. It might be a little bit depressing. I'd argue that we have a crisis of leadership both in the country, in labour and in the corporates themselves, which is reflected in the title of my presentation – The Good, The Bad and The Ugly – and I've categorised the issues around the title.

It's also a presentation within a presentation. I'll add some references to gold since we are a precious metals conference and, on top of that, inserted in here is a little bit of a PGM presentation towards the end.

South Africa is probably the world's greatest treasure chest of minerals; however, it does appear that wealth in the ground does not equal wealth in the nation. I think the gold industry is an example of an industry that has taken a beating over the last 20 years, with South African output sliding from being the premier producer in the world to sixth position now, having lost its crown around 2005/2006. That said, you know, if these resources were husbanded better, with better law, confidence and investment, maybe South Africa could get its premium rating back in the mineral sector.

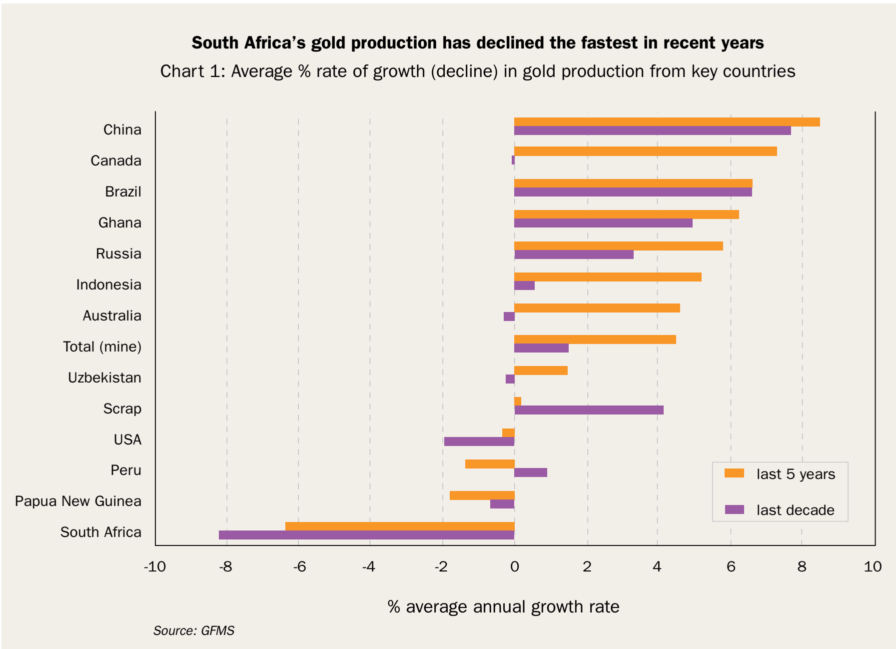
I get a sense with our government over the last five or 10 years meddling with the law that they see the industry as a never-ending font of money, which is no longer the case. And as an industry that is down just now, it continues to be kicked, and I hope not kicked to death by the politicians. South Africa is a good place to mine. It's a world leader in many mining technologies, and it's a world leader in depth, with apologies to Dr Spock, for South African gold miners have gone places where no one else on the planet has ever gone, and depth is not necessarily a working cost issue – it's a CAPEX issue. And you know all credit to the likes of Goldfields for continuing to invest in the new deep level mine at South Deep – it clearly believes that you can have world-class mining operations, albeit at great depth.

I think that South African corporates seem to be eyeing opportunities offshore. This is more so than perhaps eyeing the opportunities onshore in the name of diversification, risk, etc. I think there's a responsibility on the part of South African corporates to re-examine and look for the opportunities within South Africa rather than abroad.

Those of you who've been to South Africa know that it's a great place to mine, or it should be. I mean, there's no such thing as remoteness. The infrastructure is pretty exceptional – you can land in Johannesburg and you can be in the world's greatest platinum belt in an hour and a half by car – that's not remote by any stretch of the imagination.

The three amigos

However, there are problems and here is a photo of my three amigos. We have the boss of the National Union of Mineworkers, the oldest liberation union in mining, and I would argue, now a shop-soiled trade union that's been in a

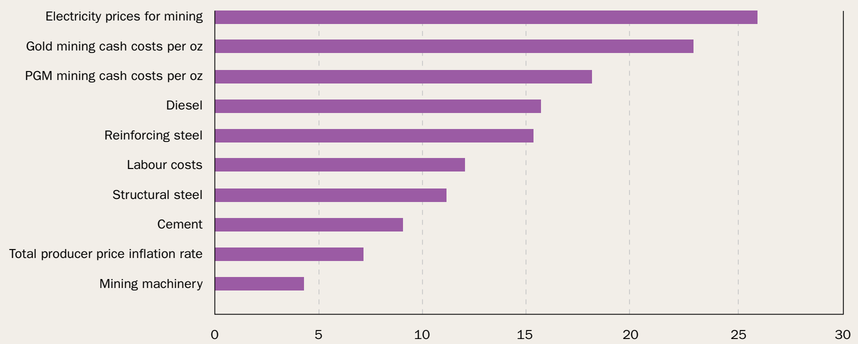


very cosy relationship with the governing party for some 20 odd years, and which I think has basically lost its way and its moral compass. Into that vacuum, we have Joseph Mathunjwa, the President of the Association of Mine Workers and Construction Union. This man is a radical, he's self-interested, and he split away from the NUM several years ago. The trade union movement in South Africa is a licence to print money. You clip between 1% and 2% of every worker's pay cheque every month and so the battle for membership often becomes brutal, violent and intimidatory, and this man is a master at it.

Aided and abetted by our friend, Julius Malema, a rebel rouser, opportunistic ex-ANC politician who's gone on to establish his own party. Those of you who were in Montreal will remember that this is the man who three years ago said that the mining industry must share some of this 'delicious cake' with him. I don't know quite how he meant to share, but I assume it was for his back pocket.

Inflation in input costs has simply been too high (and mostly out of control of the miners)

Chart 2: Cost inflation affecting the mining sector, average annual increase in costs, 2007 to 2012



In three years, he's gone on to be expelled from the ANC, and get tied up in the AMCU and the platinum strikes and whatever earlier this year. But was sworn in as a Member of Parliament in our new parliament in February this year, and he dressed himself in an unusual fashion to make a point. Right now, he is under a disciplinary inquiry and suspended from parliament for failing to comply with amongst other things, the dress code!

I think there are a number of real issues in South Africa, not only the costs, but people are well aware of what's happened with cost pressures in South Africa. I'd argue again, costs – and there are a lot of 'administered' costs but the rampant labour cost runaway that we've seen of the last 20 years has in part something to do with the management being unable to reign in the trade unions. The result has, as everyone knows, seen the decline of the gold industry. I believe if we don't take urgent action in South Africa, the platinum industry will continue to decline in much the same way as the gold industry has.

Productivity is a key problem in South Africa. When I joined the industry, the working week was 11 days in every fortnight and there were very few public holidays. The shift cycle meant that companies having invested all these billions could actually operate their mines for an excess of 300 to 310 days, maybe as much as 320 days a year. Due to negotiation between management and unions, and government regulations being imposed on the industry, we have a very fine sort of European-style low-hour working week and, as a result, the number of productive shifts has now fallen to the order of 230 days a year. That is a significant de-rating of the South African industry for the same amount of capital input, and I believe it has to be reversed in one way or the other.

Costs are up. Electricity, which people are well aware has been a problem in South Africa. You're looking at the fact that Eskom has, I believe, grossly mismanaged the power situation. We are looking at the return of load-shedding power cuts, shortages of power for new businesses to open in South Africa, but above all, you're looking at the fact that the power price has gone from 2 to 8 US cents in under a decade; and this has been particularly hard on power-intensive industries such as gold and platinum mining. The Department of Minerals and Energy as it used to be called, now it's the Department of Mineral Regulation, has tampered with the law, introducing lots of complexity and bureaucracy. The impact of this has been that many foreign miners and foreign investors in the country have seen the difficulties of trying to permit and license and prospect in South Africa, and in many cases have actually gone elsewhere. It is complicated by the Black Economic Empowerment Legislation that you have to consider for a major new mine; you'll probably have to 'free carry' your Black Economic Empowerment Partner for 26% of the entire cost of your project. That just raises the hurdles for investment.

I'll give you examples that have just happened in the Press in the last two weeks. Ivanplats, a Canadian outfit wanting to invest somewhere upwards of $2 billion in the platinum industry, finally out of frustration at not getting its mining licence, announced on 22 October that it's putting its project on hold and sacking 325 people. That's what it came to in order to get the government to actually grant it the mining permit that was months overdue. And low and behold, on 5 November, the said permit was granted!

> *"The amendments to the Mineral and Petroleum Development Resources Act have been stalled three times this year due to inter-party/inter-government wrangling."*

Aquarius Platinum had been trying to sell a mothballed mine to a Chinese group for about 18 months, but after nine extensions to the conditions precedent to the transaction, it gave up and the deal was cancelled, and it (AQP) publicly blamed the government for it.

When we start talking about the operating environment, the issue of corruption crops up. South Africa is probably not different to many other developing countries when it comes to battling the scourge of corruption. However, it doesn't help itself; it writes bad law. The amendments to the Mineral and Petroleum Development Resources Act have been stalled three times this year due to inter-party/inter-government wrangling. This law will result in even more discretion for the Minister and his or her officials. It will give the government the ability to deem certain commodities strategic, and therefore companies will have to sell them at under the market price, again at the discretion of the Minister. This is bad law – it feeds corruption. The bureaucracy I talked about earlier – inevitably I believe, feeds corruption because the temptation to expedite your project, your permits or whatever, it has to be there, the temptation of the brown envelope – and anecdotally, it does occur in South Africa.
I think, of course, in looking at all this, people talk about the 'fish rots from the head', and our President was apparently oblivious to the fact that taxpayers had spent some 246 million Rand on security upgrades for his house in the village of Nkandla. It's mind-boggling to believe that somebody could be this insensitive.

As you are well aware, we have some very serious problems with labour. Communities are becoming antagonistic towards mining largely because of unfulfilled promises or unfulfilled expectations that were created by the ruling party and not followed through. I think there's a belief that mining is a never-ending golden goose that can lay the eggs, and carry on laying the eggs, but the reality is big investment goes in before returns come out, and this is something that is hard to explain to a financially illiterate mass of people.

Coupled with that, you've still got issues like the festering sore of the Marikana horror.
Our Deputy President describes Marikana as a collective responsibility; as a nation we should dip our heads in shame and accept that we've

Widespread unrest among the mine workers who have become increasingly antagonistic because of unfulfilled promises

all failed. Hang on; this guy represented the Black Empowerment Group that owns 18% of the company at which this horror happened! With the sort of double standards and hypocrisy that goes on, the decks have to be cleared. We have a new Minister of Mines. He's described by a prominent University of Cape Town law professor as a "...clumsy politician to the right of the ANC, a nationalist and outspoken critic of the constitution. This will result in a difficult time for the mines and international investment and confidence in the country." Surely, we can get better leadership in the state and the state can, with its relationship with the trade unions, exercise and put some pressure on to help achieve this.

We are also dealing with the fact that a five-month platinum strike this year, where the workforce were promised pay increases upwards of a 100% – they ended up getting 12%! They lost five months of pay. People died, there were lots of injuries, intimidation occurred; mining is hard, it's dirty, it's dangerous in some cases, but does that mean that a mine worker has to be paid twice what a nurse, a teacher or a police constable earns in South Africa? And it's this kind of thuggery that has somehow to be brought to an end.

Again, the whole perception of who actually creams the money from the platinum industry. There is a reality that shareholders have actually had very little share of the pie in the last five or six years. I would argue, yes, we do have a crisis of leadership and that probably sums up where the mining industry is at the present juncture. I've described how the gold industry is in decline. It shouldn't be, but it is. It's lost as in 'gold is lost' and the 'three PGM bears', Platinum, Palladium and Rhodium – with apologies to the author of the fairy tale. We dig, dig, dig, but it's certainly not for profit. We have a situation; let's take yesterday. Lonmin, the world's third-largest producer of primary PGMs, announces a $326 million loss for this year. It's going to spend $350 million of CAPEX to ramp up production in the face of over-supply and, as a London analyst said yesterday, Lonmin has only generated sufficient cash flow in two out of the last seven years in order to fund its capital needs. So it's clearly not a company that's focused on profit and certainly not looking after its shareholders' interests.

The platinum market, I think we all know is in a mess. It is over-supplied, it doesn't matter whose research you look at in terms of fundamental market research; however, the equity analysts continue to persist with the belief that there are a million and two million ounce deficits out there. However, there was a youngster up here on this stage a year ago called Walter De Wet from Standard Bank, who did a very good, albeit rather dry presentation, and who took the view that the world had three years of platinum above ground for industrial consumption purposes. That might be a bit extreme, so I plagiarised Will Tankard's work here, and if I add up his bars, there's certainly a year, maybe a bit more of platinum above the ground. So where are these deficits that the equity analysts talk about? They're clearly not there. The equity analysts put ETF in as demand – it's not demand, it is stock! And all that's really happened in the platinum industry in five years is the stock has moved from the miners who used to hoard it in bad times and release it in good times, and they've dumped it into the financial space mainly with the ETFs and other investments.

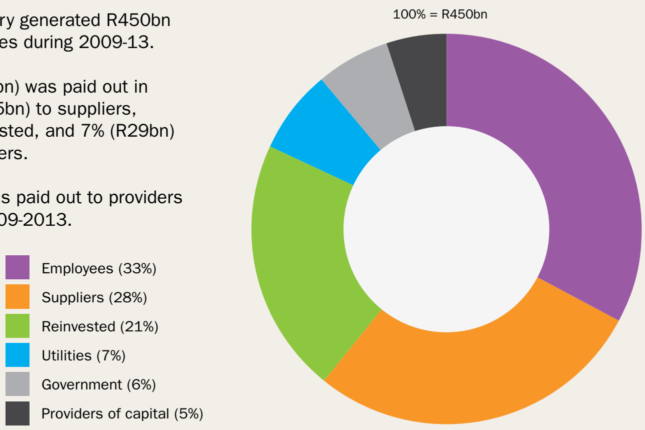
Who gets the dough?

Chart 3: Aggregate value distribution of the SA platinum industry (2009-2013, Rbn)

The platinum industry generated R450bn in aggregate revenues during 2009-13.

Of this, 33% (R150bn) was paid out in salaries, 28% (R125bn) to suppliers, 21% (R95bn) reinvested, and 7% (R29bn) paid to utility providers.

Only 5% (R24bn) was paid out to providers of capital during 2009-2013.



As a result, platinum has been commoditised; the big miners are in a race to get to the bottom of the cost curve, to achieve lower unit costs; however, in the process, they gave up husbanding the revenue line, they gave up looking after the market. The end result has been an industry that well, I've got some figures there, it's lost several billions of Rands in the last two years, has raised $2.8 billion in new equity since 2008 and paid $400 million of dividends. The combined market capitalisation, including the juniors, is down by over 500 billion Rand since June 2008. Tell me that the managements of these companies are husbanding shareholders' wealth – well, that's a myth, a complete myth!

Where does the industry go from here? We hear about selling assets, well, Aquarius failed to sell to the Chinese, Eastplats announced on 8 November that it's going to sell the Crocodile River Mine, a mine that's had more owners and sucked in more investment than you can shake a stick at, and it's now going to sell it to a Chinese consortium for over $200 million.

The market does not need more metal; it needs less metal and it needs to reduce investment and cut costs. Lonmin said yesterday, "... we're going to take two billion Rand out of the costs". Hang on boys, labour accounts for 50% to 60% of your costs, and you're ramping up production – you can't cut labour, so how on earth do you take two billion Rand out of your power, chemicals, consumables and machinery. The maths just don't add up; start facing the truth boys!

Shut shafts or shut mines? One player, Aquarius, shut mines in my time that were too small to actually have any impact on the market. We need the high marginal cost output of this industry cut, and the gap between the two has got to close, I believe, in order to get fundamental supply and demand back.

So where are we at? I think the theme of this bit of the conference was 'when in a hole, keep digging', and I'm afraid that is the dilemma facing the South African producers – when in a hole just keep on digging and neglect your shareholders!

With that thanks very much.

Stuart Murray, Chairman, Sylvania Platinum Limited.
Stuart Murray has over 25 years of executive experience in the Southern African platinum sector, commencing his career at Impala Platinum's Refineries in 1984. He held a number of positions at Impala Platinum, Rhodium Reefs Ltd, Barplats Mines, and Middelburg Steel and Alloys, before joining Aquarius Platinum Limited in 2001 as Chief Executive Officer, holding that position until 2012. He is currently Chairman of Sylvania Platinum Limited, the South African pgms from chromite tailings processor and a Non-Executive Director of Talvivaara Mining Company Plc, the new technology Finnish nickel miner. He was educated in Scotland and gained a Bachelor of Science (Engineering) degree in Chemical Engineering from Imperial College, University of London in 1984.

Review of the 2014 LBMA Precious Metals Conference

By Aelred Connelly, Public Relations Officer, LBMA

Investment Panel on Day 1 of the Conference

The LBMA's 15th Annual Precious Metals Conference took place this year in Lima, Peru on 9-11 November. After 15 years of hosting conferences worldwide, this was the first time that the LBMA had held its Precious Metals Conference in South America.

In doing so, the LBMA fulfilled a promise to hold the conference in Lima, having had to abandon plans to hold the conference there in 2009 owing to the financial crisis. South America is an extremely important region for the mining of many metals, particularly gold and silver. Gold was, of course, the main attraction for the Spanish during the time of the Conquistadors and eventually established Lima as the capital of the Spanish empire in South America. In modern times, half of the world's silver is mined in South America, with Peru the world's second-largest producer of silver. Peru is also the world's fifth-largest producer of gold.

For a long haul destination, it was gratifying to see that the Conference attracted a higher number of delegates than anticipated, with more than 400 delegates in attendance from more than 37 countries and 188 different companies. The numbers were much lower than at the Rome conference, but this made for a more intimate event and one in which delegates found it easier to network.

The Vice-President of Peru, Marisol Espinoza, delivered a Welcome address in the Opening Session of the Conference and there was a strong local presence during the rest of the programme featuring Eva Arias, President of SNMPE, and Roque Benavides, CEO of Buenaventura. Other highlights on an excellent programme included the Keynote address from Wolfgang Münchau, Associate Editor of the *Financial Times*. You can read Wolfgang's speech in the Alchemist on page 3. This year, the programme included two Panel discussions, one on Investment chaired by Wolfgang and the other by Jon Spall focusing on Hot Topics facing the Precious Metals Market. These sessions were particularly well received as was the new-look Conference Wrap Up, which for the first time took the form of a double act, ably conducted by John Reade and Ross Norman. The best speaker prize of a 1oz gold bar was awarded to Grant Angwin for his presentation on a refiner's perspective in the Physical Markets Session. This was Grant's first conference as Chairman of the LBMA so it was fitting that he carried off the main prize.

Grant Angwin is awarded the 2014 conference best speaker prize, a 1oz gold bar, from Mehdi Barkhordar, CEO of PAMP SA. The winning prize was kindly donated by PAMP SA.

A noticeable feature of this year's Conference was the higher than usual attendance figures for each of the sessions, which in part reflected the excellent speaker programme put together by the Public Affairs Committee (PAC). In the absence of the usual digi handsets (which were impounded by the Peruvian Customs officials), delegates had to ask speakers questions direct from the Conference floor, which actually helped make the event more dynamic and interactive. Special thanks for organising the programme should be extended to the Public Affairs Committee under the stewardship of Edel Tully, who had been beavering away ever since returning from the last conference in Rome. Already their attention has switched to preparing the programme for next year's conference, which will be held in Vienna.

> *"This year, the programme included two Panel discussions, one on Investment chaired by Wolfgang and the other by Jon Spall focusing on Hot Topics facing the Precious Metals Market."*

This year, the proceedings featured, for the second year in succession, a Responsible Gold Forum, organised in partnership with the Responsible Jewellery Council, which was held directly after the close of the main Conference programme. Given the location of the Conference in Peru, responsible sourcing and artisanal mining are vital issues, so having the opportunity to listen to presentations and debate from representatives from the OECD, artisanal miners, producers, NGOs and others helped inform delegates' understanding of responsible sourcing and engagement.

As is the case every year, media attention focused on the gold price predictions from conference delegates. On the first day of the 2013 LBMA/LPPM Conference in Rome,

Delegates enjoying the Gala dinner on Monday 10 November

delegates were extremely bullish in predicting that the gold price would be US$1,423 by the time of the 2014 Conference. The following day, they predicted a lower price of $1,405, indicating that discussions in the wings of the conference had perhaps caused a revision of delegates' bullish views. Hindsight really is a wonderful thing. It transpired that despite the downward adjustment of their forecasts, delegates were still some $243 off the actual price of $1,162 for the last fix before the start of the 2014 Conference. This year, delegates predicted on the first day of the Conference that the gold price will be up marginally at $1,200 by the time of the 2015 Precious Metals Conference in Vienna (18-20 October). Delegates also gave their predictions for the price of the other three precious metals at the time of the next conference. They were most bullish about silver and platinum prices in 2015, predicting increases of approximately 9% for both metals. Their forecasts follow: silver $17 (latest price prior to the start of the Conference

Dancers on stage at the Gala dinner

was $15.67), platinum $1,325 ($1,209) and palladium $825 ($772). We will be publishing the LBMA's Annual Precious Metals Forecast Survey in January 2015. Experts from the market participate in the Survey and will be asked to forecast the average price of the four metals during 2015. So it will be interesting to see whether their forecasts concur with those of the Conference delegates.

The presentations from all the other speeches delivered at the Conference are available now on the LBMA's website. The LBMA would like to extend its congratulations and thanks to

"Delegates also gave their predictions for the price of the other three precious metals at the time of the next conference."

all the speakers for contributing towards the Conference proceedings as well as the delegates who attended the conference. Thanks also go to the sponsors of this year's Conference: CME Group for the Welcome Reception on the Sunday evening, EBS for the Gala Dinner and Johnson Matthey USA for the Monday lunch. Thanks also go to the 18 booth exhibitors who advertised their products and services, many of whom took advantage of the LBMA's offer to have their booths built locally rather than shipping them direct and running the risk of falling foul of Peruvian customs. A special thank you should also be extended to Don Guido del Castillo for the wonderful display of minerals from Peru. This collection, which has taken him many decades to amass, was a welcome attraction.

Special mention should also be made to the former Chairman of the LBMA, David Gornall, and the former Chief Executive of the LBMA, Stewart Murray. Unfortunately, neither of them were able to attend the Conference this year. It was the first LBMA conference that Stewart had missed and I would like to thank them both for their dedication to the work of the association during their respective tenures. The LBMA still, of course, benefits from Stewart's knowledge in his current capacity as a consultant on Good Delivery related issues. The LBMA's Public Affairs Committee, who are responsible for organising the annual conference, are now turning their attention to organising the 2015 event, which will take place in Vienna, Austria from 18 to 20 October. One of the things that the Committee will be considering is the feedback from delegates attending this year's Conference. It was a great and successful Conference in Lima, but there is always room for improvement and we will be working hard to ensure that next year's conference is even better than ever. We hope to see you there!

And finally...

We were honoured at this year's Conference to receive the Welcome address in the Opening Session from Marisol Espinoza, Vice-President of Peru. She delivered her remarks in Spanish so for the benefit of those delegates who do not understand Spanish, the English translation of her speech follows.

Welcome to the LBMA's Annual Precious Metals Conference. I would like to welcome Grant Angwin, LBMA Chairman, Ruth Crowell, Chief Executive of the LBMA, Eva Arias, President of the National Mining and Petrol Company, and also Guido de Castillo, President of Aruntani SpA.

Today is quite a special and significant occasion so please allow me to welcome you to our country. We are very pleased to host the LBMA's annual gathering for two reasons: one due to the quality of the panellists and exhibitors, but above all for the opportunity to hold discussions in our country and to see what effect the proposals made throughout this gathering will have on the precious metals market. Peru was to host an earlier meeting, but as you all know, the situation and the fluctuation in commodity prices prevented the conference from taking place on that occasion.

We are all here together in Peru and I don't just want to welcome you but also wish you great success at this conference. I am sure you will hear of proposals and a path to follow in the field of investment and, above all, how to move the mining industry forward.

Peru is the fifth-largest producer of gold in the world; it has an enormous mining potential. It is second in copper, first and second in zinc and silver respectively this year, and fourth in lead production. We have high expectations for this, for the next few months, with new investment projects such as that of Las Bambas, which is already making progress in terms of production and the installation stage. We are also convinced that the Peruvian economy will offer you many great opportunities. We have and can guarantee legal safeguarding and we are also making progress in ensuring that procedures are much easier and simpler. We are always keen to look after our relationships with both communities and the environment, something that is also a priority for the Peruvian government.

In this context, we are convinced that this is a critical moment in terms of the price of commodities but we are also very optimistic. We know that Peru, as well as guaranteeing production, will overcome this fluctuation of prices and will achieve a better opportunity to raise investment, production and the market will shine again once more.

This is the first time that such a gathering has taken place in South America. I would like to welcome you and wish you every success.

Welcome to Peru. Thank you.

LBMA's 14th Biennial Dinner Review

By Aelred Connelly, Public Relations Officer, LBMA

The top table guests, left to right, John Bennett, Sir Brian Bender, David Gornall, Ruth Crowell, Grant Angwin, Lord Daniel Finkelstein, Matthew Hunt, Steve Lowe and Doris Rijnbeek

The LBMA's 14th biennial dinner took place in the Guildhall on 1 December 2014. The dinner was attended by more than 240 representatives of Members and Associates, together with guests from other markets and central banks.

The medieval Grade 1 listed landmark provided a magnificent setting for the dinner and a fitting one too given its historical association with the merchant classes who have traditionally met here to refine laws and trading regulations. Guests were able to view the City of London Corporation's 1297 copy of the Magna Carta, which is currently on display in the Guildhall Art Gallery to mark the 800th anniversary next year of its creation. The document is widely regarded as one of the finest surviving 13th century copies and, owing to its delicate condition, it currently only goes on display for special events. The City of London Corporation's 1297 Magna Carta includes Edward I's seal and the original writ directed to the Sheriffs of London, ordering that the Charter be promulgated within the City. The Charter was confirmed in Parliament, which gave the document statutory force.

The City of London played an active role in the events that led to Magna Carta's creation in 1215 and the Mayor was appointed, along with the barons, to see that its provisions were fulfilled. London was also the only city

> *"The medieval Grade 1 listed landmark provided a magnificent setting for the dinner and a fitting one too given its historical association with the merchant classes."*

specifically referenced in the Magna Carta, in the clause that stated that *"the City of London shall have all its ancient liberties by land as well as by water"*. The grant requires the mayor to be presented to the sovereign for approval and to take an oath to be faithful. These provisions continue to this day and are enshrined in the annual election and swearing in of the Lord Mayor.

The LBMA was honoured to have both a Sir and a Lord in attendance at this year's biennial

Biennial Dinner Guests at dinner

Lord Daniel Finkelstein delivering the toast to the LBMA

Left to right: Grant Angwin (LBMA Chairman), Ruth Crowell (LBMA Chief Executive) and Steve Lowe (LBMA Vice Chairman).

1297 version of the Magna Carta

dinner, in the shape of Sir Brian Bender, a retired British civil servant, and Lord Daniel Finkelstein, Executive Editor of *The Times*. Also in attendance was John Bennett, Chief Commoner at City of London Corporation. Proceedings began with a cocktail reception in the east crypt where guests were introduced to the Chairman of the LBMA, Grant Angwin, Vice-Chair Steve Lowe and the Chief Executive of the LBMA, Ruth Crowell, by the Master of Ceremonies. Drinks and canapes were served and guests were entertained by the Belinfante String Quartet who played unobtrusively throughout the evening, allowing guests to mingle and chat without disturbance (remember the drums in Rome!).

The dinner was held in the magnificent setting of the Great Hall. Following dinner, Lord Daniel Finkelstein delivered the main address of the evening by offering the toast to the LBMA. At the start of his speech he said that he wanted to make five points, and with only the assistance of a piece of paper with five words written on it, he provided the guests with an amusing insight into human nature and the political process. He also talked about the concept behind his weekly football statistics column, which is published in *The Times* every Saturday. Grant Angwin delivered the toast to the guests, his first as Chairman of the LBMA at a biennial dinner. Grant spoke of the challenges that have faced the LBMA, particularly over the last year. An abridged version of his speech forms the basis of the Editorial which you can read on page 33.

And finally, a special word of thanks to Mrs Doris Rijnbeek, Deputy Head Front Office at the Austrian National Bank, who stepped in

> *“ Grant Angwin delivered the toast to the guests, his first as Chairman of the LBMA at a biennial dinner. ”*

at late notice to give the Response on behalf of the guests. It was fitting that Doris closed proceedings given that Austria plays host to the 2015 LBMA Conference, which will be held in Vienna on 18-20 October 2015.

Biennial Dinner Main Dining Room

Guests enjoying the Cocktail Reception in the East Crypt

Because you need precious metals solutions, we offer trusted global insight and expertise

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery services
- Trading centres in Frankfurt, London, Luxembourg, New York and Singapore

Bloomberg	CBGL<GO>	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 207 444 9075
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

This communication is issued by Commerzbank. Commerzbank AG, London Branch is authorised by Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request. Copyright © Commerzbank AG 2014.

COMMERZBANK

The bank at your side

'A Lifetime in the Bullion Market' – Voices of the London Bullion Market

By Dr Michele Blagg, Research Associate at the Institute of Contemporary British History (ICBH)

The jury is out, 12 "good men and true" of the London Bullion Market are (left to right) Chris Elston, Albert Helmig, David King, Philip Clewes-Garner, Tim Green, Colin Griffith, Howard Davies, Martin Stokes, Alan Baker, Stewart Murray, Peter Fava and Terry Smeeton.

Over the past 30 years, the London Bullion Market has undergone a fundamental change. The interlocking network of businesses, many of which were born out of the gold rush of the mid 19th century and remained such a prominent force for much of the 20th century, may appear remote to the great majority of those now employed in the City, let alone worldwide. The aim of the Voices project is to capture, contextualise and explain this transformation. The project started in January and the research and recording of contributors' 'voices' for the archive began in April.

To date, more than 40 voices have been recorded. This number continues to rise. Through these interviews, the careers and views of a group of individuals employed in a variety of different roles connected to the bullion market have been recorded. They prove illuminating, reflecting the enjoyment and pride felt by those who have worked in the market, many of them for the whole of their working lives. Those who agreed to share their personal experiences were selected for their diversity, the time span of their experience and, in some cases, their recollection of how they traded gold when it was still priced at $35 an ounce!

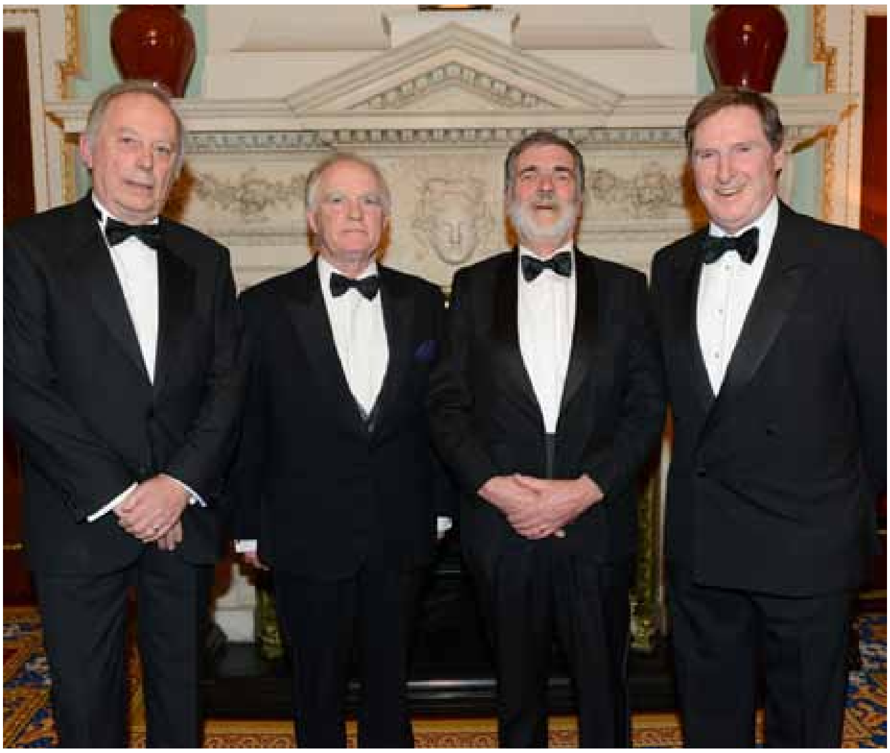
"The recording locations ranged from the comfort of the London Bullion Market Association office near the Royal Exchange, to hotel lobbies and dining rooms, and once even to the shores of Lake Annecy."

The recording locations ranged from the comfort of the London Bullion Market Association office near the Royal Exchange, to hotel lobbies and dining rooms, and once even to the shores of Lake Annecy. Accordingly, the sound quality for these recordings reflect the environment and background noises, which include the quarterly chime from the Royal Exchange bell, the clatter of dishes and traffic.

"Recurring themes included how, over time, behaviours had to adapt in order for companies to survive and meet the changing needs and expectation of clients."

Popular topics covered included the role of the back office; the changing nature of the trading desk; technological advances; client relations; the ability to build genuine trust-based relationships; leadership frameworks; the influence people had on careers; the introduction of graduate recruits to the market; issues of gender; greater transparency without threatening confidentiality; increased regulation; the production of standard documentation; the internationalisation of the markets and how the digital transformation changed the business landscape globally. Recurring themes included how, over time, behaviours had to adapt in order for companies to survive and meet the changing needs and expectation of clients. Others spoke of global mobility, increased competition from emerging markets, endless overseas travel, seamless networks and corporate responsibility; while some observed the growth of business acumen and technical capabilities transcending the boundaries of geography, politics, race and culture.

Many remarked on the pattern of work and the variety of the working day, in particular the need to be prepared for any eventuality. Others spoke of colleagues who inspired them, or recognised particular individuals for their achievements or ability to lead the market and make a difference while delivering results that benefited all. Professional relationships frequently spilled over into lives outside work. There were fond memories of a pint at the end of the working day, the friendly banter, competitiveness and rivalry between firms during games of cricket, and the annual LBMA golf day.



The original memorandum, incorporating the founding of the LBMA was signed on the 24 November 1987. Pictured are four of the signatories (left to right) Les Edgar, John Wolff, Neil Newitt and Robert Guy.

Frequently, specific events that appear in the history of the London bullion market were mentioned and examined; for example, the change in market tempo during the 1960s, particularly after 1967 when the market was woken from its peaceful slumber as international investors rushed to buy gold at $35, the price at which it had been fixed in 1934; the effects of the closure of the London bullion market for two weeks in 1968; the closure of the 'gold window' in 1971 despite the US Fed's claim to defend the price of gold at $35 'to the last ingot'; the end of the embargo on gold ownership for US citizens in the mid 1970s and the anticipated high demand for gold purchases that failed to materialise; the Bunker Hunt silver scandal and its effect on the silver price and the London market; the gold price high of 1980 as it reached a remarkable

> *“ The doldrums of the 1990s and the subsequent Central Bank gold sales saw gold in the news. Since 2000, the attention of the market has been on regulation, regulation, regulation! ”*

$850; the collapse of Johnson Matthey Bankers and the implications that followed as the Bank of England took control of the bank's affairs until a purchaser was found. Such events produced some of the most hectic trading periods in the history of the market, resulting in much scope for the making of both profits and losses. Career transitions, redundancies and moves to other firms featured highly. The doldrums of the 1990s and the subsequent Central Bank gold sales saw gold in the news. Since 2000, the attention of the market has been on regulation, regulation, regulation!

The aim of the project was not merely a nostalgic trip into memories of times gone by but to preserve the record of the evolution of the London Bullion Market Association, its structure, its place in the City's financial system and its global presence. Capturing this information is of great value for research and analysis, including why, how and who was instrumental in the formation of the LBMA. Its work continues to grow as the needs of the market evolve. The LBMA has been instrumental in undertaking many activities on behalf of its members and the wider market, including setting good delivery and refining standards, the organisation of conferences and other events, and serving as a point of contact for the regulatory authorities. One of the high points of the project came in October when the present Chairman and emeritus Chairmen of the LBMA, together with present and past CEOs, were invited to attend

> *“ The aim of the project was not merely a nostalgic trip into memories of times gone by but to preserve the record of the evolution of the London Bullion Market Association, its structure, its place in the City's financial system and its global presence. ”*

a roundtable event that examined the role and functions of the Association and how these have changed over time. Each of the Chairs and Chief Executives were asked to talk about significant events they witnessed during their tenure and issues that spanned longer periods of time. A fascinating discussion ensued. By examining its past role and purpose, the seminar illuminated important, even crucial, questions for the Association today: for example, how it operates, how it funds itself, how commercial decisions are taken and who can make those decisions. Above all, the LBMA is concerned with its members. It draws on the expertise of those employed by its members, who have specific knowledge of certain areas of the industry and who are willing to serve as voluntary officers on the various committees of the Association.

The Voices Project has addressed the lack of historical understanding and an imperfect public knowledge of the success story of the London bullion market. The timing of this project sets it apart from previous studies into the history of the City and other markets. As you are no doubt aware, 2014 saw the end of the two long-standing traditions associated with the London bullion market. First, the daily silver fixing ceased, quickly followed by the daily gold fixing. New methods for setting daily benchmarks by electronic platforms were introduced. Change often leads to losses in tracing the history of an organisation; however, many of those interviewed at some point in their career had taken part in the daily fixing ritual and spoke openly on the subject. There has been much change in recent years in the fabric of the City and this dynamism has been captured.

> *"The collection will be archived and, subject to interviewee consent, made available at the London Metropolitan Archive for consultation by researchers and historians."*

Oral history is a uniquely useful tool for collecting personal testimony, gaining insight into and reflecting on the past. The project sought to track the network of energies and influences, professional training and interactions that have shaped the bullion market. A life story approach was taken, offering a more rounded view of the individual and their contribution to the market. The contents of the one-to-one audio interviews, averaging 60 minutes in length, broadly cover the family background, education and career of the individual. The collection will be archived and, subject to interviewee consent, made available at the London Metropolitan Archive for consultation by researchers and historians.

I am indebted to all those who have so far taken the time to record their individual memories and to those who have contributed memorabilia and photographs that will enrich the collection and enhance the understanding of the market.
I would like to thank the management committee for choosing to support the project, as well as Ruth, Stewart and all the staff at the LBMA for their support, patience and for allowing many of the recordings to take place at the London offices. The LBMA would like to continue to expand the collection. Should you wish to contribute, please contact voices.project@lbma.org.uk to arrange a suitable time for your recording, or if you would prefer to make a written contribution, a list of set questions can be provided on request.

Dr Michele Blagg (BA, MA, PhD) is a visiting Research Associate at the Institute of Contemporary British History (ICBH) at King's College University. Michele is a Research Consultant for the LBMA, currently engaged on the oral history project 'Voices of the London Bullion Market'. As part if a collaborative doctoral award granted by the Art's and Humanities Research Council, she was based at the Rothschild Archive. Her doctoral research focused on the Royal Mint Refinery, operated by N M Rothschild & Sons between 1852 and 1968, and how it adapted to the changed London gold market.

Her areas of interest are in financial and business history with special regard for the actors and networks located in the London market.

She teaches on the MA in Contemporary British History and assists with the Witness Seminar Programme. She sits on the Business Archives Council Executive and is involve in the annual 'Meet the Archivists' workshop held in the City that aims to explore ways in which research students can identify and use business records in a variety of different research fields.

Past Chairmen of the LBMA – (in order of tenure left to right) Robert Guy, Dick Gazmararian, Alan Baker, Peter Fava, Martin Stokes, Simon Weeks, Jeremy Charles and David Gornall. The two missing are former chairmen Kevin Crisp and the current chairman Grant Angwin.

Silver Celebrates Something of a Magic Moment

By Daniel Marburger, Director of Silver-to-go

Daniel Marburger, Director of Silver-to-go, which sells silver bars and coins to private investors throughout Europe, discusses a landmark report that shows how silver has heavily outperformed other asset classes since 2000. He looks at the price of the precious metal and its relationship with gold, and discovers why there is a whole new use for silver that looks set to underpin demand for decades to come. Assessing the global and economic conditions that are likely to affect the price over the coming years, Daniel Marburger also gives an insight into the investors who are buying silver today.

Robert Kiyosaki, the American investor and founder of the Rich Dad Company, recently said: “If I have cash and I can’t figure a way to put it into real estate or my business, I hold it in gold and silver.” Interestingly, Kiyosaki mentions gold and silver. Until fairly recently, many commodity investors would have talked only of gold, but silver is having something of a moment. Slowly but surely, people are recognising the benefits of the precious metal and are taking it seriously.

Let’s face it, as far as alternative investments are concerned, gold usually has the upper hand, primarily because of silver’s steep tax profile across Europe. Yet, despite fiscal barriers, in recent years, the precious metal has had a shift. Not only has its price risen to levels unseen since records began, but investors have increasingly recognised its benefits in the face of global and economic uncertainty.

CoinInvest.com, the sister company of Silver-to-go, which sells silver bars and coins to private investors throughout Europe, recently asked the Centre of Business Research (Cebr) to look into silver’s investment properties. We wanted to find out how it performed as an investment asset against other classes, including gold. The results of the research showed that £10,000 invested in silver would have yielded a £23,000 return between 2000 and 2014, compared to a return of just £6,000 from the same investment in the FTSE 100 Index, a yield of £5,717 from the FTSE Euro 100 index and £4,018 from the S&P 500 Index. In terms of performance, silver came second only to gold, which would have yielded a return of £31,817 during the same period.

Certainly, global economic and political uncertainty over the past five years, particularly since the financial crisis of 2008, has encouraged investors throughout Europe to turn to silver because of its safe-haven properties, which mirror those of gold.
So, we found it particularly interesting to see that when investment in the precious metal is directly compared with other asset classes, it performs so strongly. The report says that investor demand for silver tends to be boosted in the face of elevated economic uncertainty and this helped silver make great gains in the immediate aftermath of the financial crisis.

Surprising facts about price movement

Interestingly, data collated for the report also revealed surprising information about the silver price itself. Firstly, the price of silver has traditionally been sensitive to sudden economic shocks but less so than other asset classes. The report reveals that this is because demand is also driven by real industrial production, which tends to be more stable.

Table 1: Return of different asset classes on 26/09/2014 based on initial investments made on 03/01/2000

	Silver price	Gold price	FTSE 100 Index, total return	FTSE Gilts Index, 10-15 years, total return	FTSE Euro 100 Index, total return	S&P 500 Index, total return	Dow Jones CBOT, Treasury Index, Close
£5,000	£11,454	£15,909	£2,946	£7,327	£2,858	£4,018	£4,525
£10,000	£22,908	£31,817	£5,892	£14,654	£5,717	£8,036	£9,049

£10k invested in Silver in 2000 would have yielded £23k of return - Silver and Gold heavily outperformed other asset classes

Source: LBMA, Eurostat, Macrobond.

ROYAL CANADIAN MINT
MONNAIE ROYALE CANADIENNE

ROYAL CANADIAN MINT GLOBAL STORAGE SOLUTIONS

The **Royal Canadian Mint**, a Crown corporation of the Government of Canada, is a global storage leader for gold, silver, platinum and palladium coins and bars at leading facilities worldwide. Providing unparalleled ounce-for-ounce security and flexibility, our offering is backed by a triple-A credit rating and world-class precious metal products.

- WORLD-LEADING GOLD AND SILVER REFINERY
- STRONG RELATIONSHIPS WITH MAJOR GLOBAL BULLION BANKS FOR HIGHLY-LIQUID POOL AND PHYSICAL ACCOUNTS
- PRODUCTS ACCEPTED ON THE WORLD'S MAJOR PRECIOUS METAL EXCHANGES
- LONG HISTORY OF PRECIOUS METAL STORAGE FOR FUNDS, INSTITUTIONS, BANKS AND HIGH-NET WORTH INDIVIDUALS
- LBMA ASSOCIATE MEMBER
- ISO 9001:2008 REGISTERED

TO LEARN MORE ABOUT ROYAL CANADIAN MINT GLOBAL STORAGE SOLUTIONS:
MINT.CA/ALCHEMIST | +1 613 998 1400

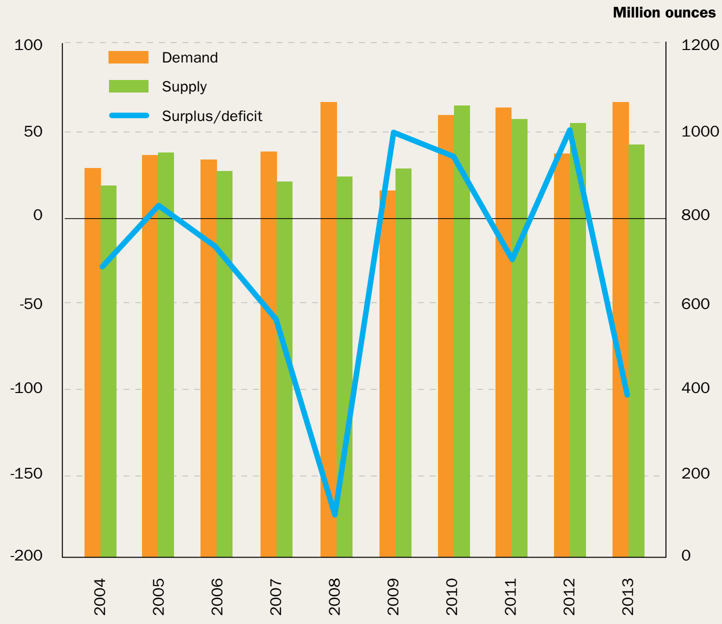
© 2014 Royal Canadian Mint. All rights reserved.
La plupart de ces informations sont également disponibles en français à monnaie.ca.

However, looking at its long-term history, silver did see a dramatic spike in 1980. This time, the spike could not be attributed to global economic and political events. Instead, it was a pair of Texan oil barons, the Hunt brothers, whose failed attempts to corner the silver market led to a crash in prices on 'Silver Thursday', as 27 March 1980 became known.

Following on from 'Silver Thursday', the precious metal's price remained relatively stable until the financial crisis and its aftermath. Indeed, the silver price followed an upward trend in the face of global economic uncertainty at this time. It actually reached a peak of $48.70 per troy ounce in April 2011, making it three times as high as it had been at the beginning of the crisis, the day of Lehman Brothers' collapse.

Although the price of silver has been on a downward trend since April 2011 (see chart 2 below), today's price of $16.80 per troy ounce is still close to double the long-term average of $8.80 per troy ounce and nine times higher than the price set in 1970. Another interesting point to note is that 2013 saw the third-highest nominal annual average price on record, despite double-digit falls from the previous year's level.

Chart 3: Demand and supply of silver (RHS) and surplus or deficit (LHS)



Source: 2014 World Silver Survey

The gap has started to narrow

The report reveals that the relationship between the price of silver and gold has always been close. However, following the 2008 financial crisis, silver's price was rising faster than that of gold, which led to a fall in the gold-silver price ratio when the silver price peaked in April 2011. More recently, though, the gap in the performance of the two metals has started to narrow as silver prices have fallen more dramatically than gold prices. Even so, the report discovers that silver still outperforms gold today when setting 2009 as a benchmark. In 2013, investors and consumers rushed to take advantage of falling silver prices, resulting in a steep rise in demand to 1,081 million ounces from 954 million ounces the year before. At this time, supply failed to match demand and production declined from 1,005 million ounces in 2012 to 978 in 2013. Looking ahead, the report predicts supply will cover some ground this year and the gap between the two will narrow slightly to go some way to redress the wide deficit.

Industrial use is a major strength

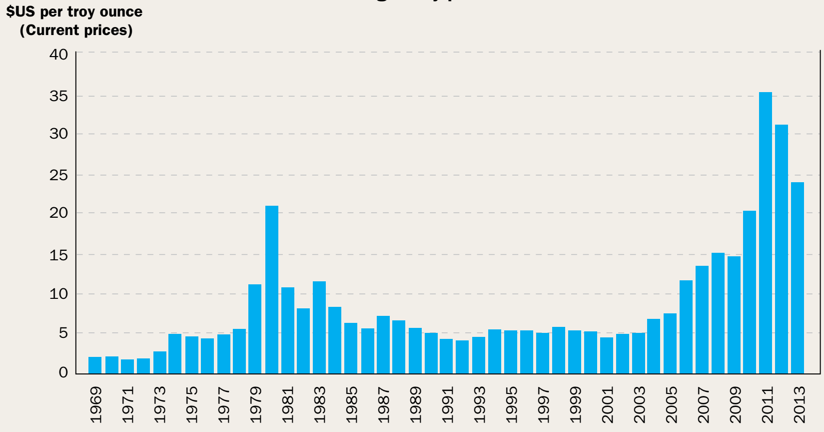
One of the biggest strengths of silver as an investment asset is its use in industry and technology. In 2013, more than half of the world's silver went to industrial applications in technology. Private and institutional investment, on the other hand, is a relatively small part of overall silver demand, with just over a fifth of the world's silver being used for investment purposes. The remaining demand can be attributed to jewellery or silverware demand, which has been fairly consistent over the past decade.

The picture for gold is very different. Indeed, just under half of its demand is attributable to jewellery and less than 10% is used for industrial purposes. Investment demand in this precious metal, therefore, plays a much greater role in the gold market.

> *"One of the biggest strengths of silver as an investment asset is its use in industry and technology. In 2013, more than half of the world's silver went to industrial applications in technology."*

In terms of the overall investment demand for silver, data analysis by Cebr shows that investor demand is clearly the most volatile element. Our charts show that demand peaked in 2008, in the immediate aftermath of the financial crisis, and more recently in 2011, 2012 and 2013, yet there was much less demand in the years immediately preceding the financial crisis.

Chart 2: Annual average daily price of silver since 1969

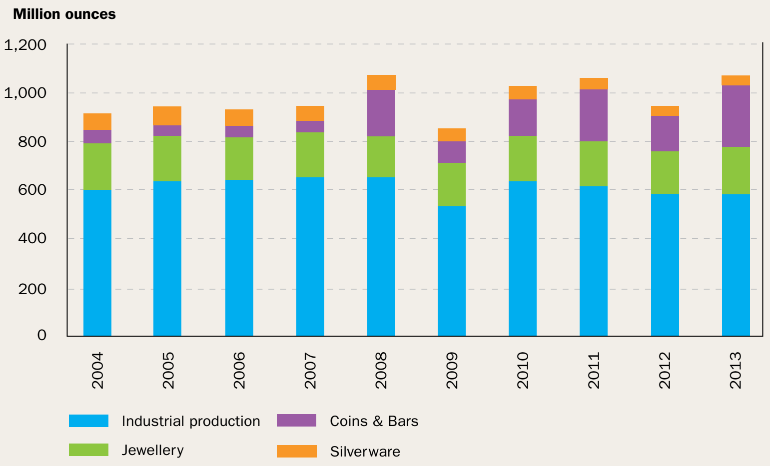


Source: LBMA

Silver and photovoltaic energy generation

Undoubtedly, silver's chemical properties make it a favourite component in a number of industries. For example, silver is the most widely used metal as an electrical and thermal conductor, which makes it a key input in many electrical and electronics products such as batteries. In addition, it is an important component in photographic film, which is used in radiography, the graphic arts and consumer photography. We can see from the report that photographic demand for silver has declined

Chart 4: Demand for silver over time



Source: 2014 World Silver Survey

Similarly, India's demand for silver rose by 11% over the same period.

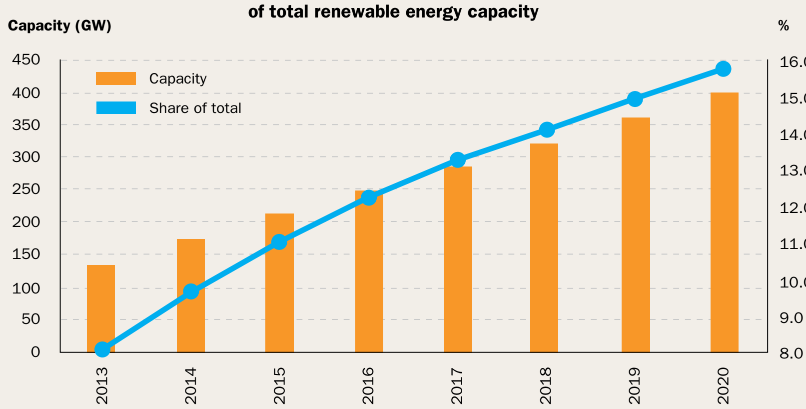
Silver in the last five years

The financial crisis of 2008-2009 and the 2011 Eurozone crisis that followed shortly after have caused significant global economic uncertainty over the last five years. Certainly during this period, many investors turned to silver and gold because of their potential as safe-haven assets to help insulate from the uncertainty and volatility plaguing the stock markets. This increase in investor activity helped silver triple in value between the start of the crisis and April 2011. Since then, however, prices have come down, but silver still outperforms most other similar asset classes when setting the start of the financial crisis as a benchmark.

greatly over time, particularly with the rise of digital photography and smartphones equipped with high-quality cameras. In 2004, for example, photographic demand for silver declined by over 70%.

However, other uses of silver are becoming more prominent and look set to replace the decline in demand for photographic use. For example, silver is an important component in photovoltaic cells, the technology used in the majority of solar panels. Cebr reports that the International Energy Agency expects solar photovoltaic installed capacity to grow continuously and robustly to the end of the decade. Therefore, the use of silver in solar photovoltaic energy generation is expected to provide a growing source of silver demand going forward.

Chart 5: World Solar PV installed capacity (GW) and share of total renewable energy capacity



Source: International Energy Agency

> *"Europe, on the other hand, has seen a decline from 28% to just 17% of global demand, whilst demand in Asia has gone up by nearly 10% to 56% of global demand."*

Interestingly, demand for silver is also shifting geographically. For example, data from the World Bank and International Monetary Fund show that industrial production is set to be driven by emerging markets. Indeed, Africa, Asia and South America are expected to see a more pronounced rise in industrial production compared to the developed economies.

Meanwhile, our report shows that from 2004 to 2013, there has been a shift in demand from Europe to Asia. Within the decade, demand in North America, South America and Oceania has remained stable. Europe, on the other hand, has seen a decline from 28% to just 17% of global demand, whilst demand in Asia has gone up by nearly 10% to 56% of global demand.

On a per capita basis, though, advanced markets continue to dominate the silver scene today. Within Europe itself, Austria tops the list with demand rising 13-fold in the past decade. This is no real surprise to us as the Austrian Government's Mint has produced more coins within the last ten years, including the Austrian Silver Vienna Philharmonic, which was first produced in 2008 and is legal tender in the country. Coins like this have helped to boost demand as a whole.

Impact of Indian fiscal policy

Policy driven changes in India had a significant impact on the silver market in 2013. Indeed, last year, the Indian government introduced restrictions to the gold market, with rises in taxes and constraints on imports aimed at restricting the gold trade. These fiscal measures drove investors and consumers alike to silver and substantially pushed up overall demand. This was despite a decline in Indian industrial demand for silver, which was caused by a slowdown in economic activity.The result was that Indian demand for gold declined by 3%, allowing China to overtake it as the world's biggest gold market between 2012 and 2013.

Silver consumption in the future

Although 2014 began as a promising year for many economies, particularly those hoping to cement their recovery, the year has contained a few shocks with global reach. Firstly, the ISIS crisis, the Ebola outbreak and the Russia-Ukraine conflict have all combined to bring risk and uncertainty to alarming rates. In addition, the Eurozone has been particularly badly affected, with its three biggest economies, Germany, France and Italy, on the brink of recession once more. As a result, the European Central Bank is expected to keep monetary policy loose for a considerable period of time. In our report, Cebr predicts that loose monetary policy will support consumer demand for silver, primarily in the form of jewellery and silverware, because the cost of taking loans will remain low and the benefits of saving negligible.

Similarly, despite the US and UK economies seeing strong growth this year, their labour markets continue to suffer from weaknesses. The Centre for Economics and Business Research expects that the Federal Reserve and the Bank of England will keep rates on hold until at least mid-2015 to prevent putting recovery

in either country at risk. And, according to Cebr, even when tightening does kick in, it is unlikely that rates will return to the high levels seen in the pre-crisis period.

Another interesting point to note is that the report analyses the share of world silver demand to identify the top ten markets. Cebr then looks at the GDP compound annual growth rate of each of the leading markets to see whether economic conditions will be conducive to demand in the years ahead. Certainly, China, India, Thailand, South Korea and the UK are all expected to see a significant rise in compound annual growth rate to 2025, thus continuing to support demand for silver in the years ahead.

Surge in industrial demand for silver

A key factor expected to determine the demand, and price, of silver in the coming decade is the outlook for industrial uses of silver. We have already talked about more than half the world's silver going to industry, with wide-ranging applications from photography to electronics. Although the use of film photography is expected to continue declining in the coming decade as we become more entrenched in the digital age, other uses for silver look more fruitful. As discussed earlier, the solar photovoltaic energy industry in particular is expected to provide a growing source of silver demand.

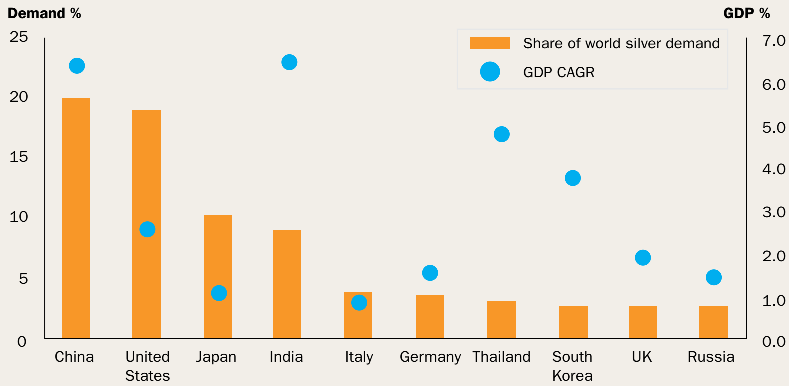
Who's buying silver now?

For the would-be silver investor, it is undoubtedly easier to buy the precious metal today. Online companies like Silver-to-go, which operates from Germany and offers VAT-free coins for delivery across Europe, mean that buying silver is as easy as placing an order for toys, food and clothes. Investors can browse the website, place their preferred items in the shopping basket and their silver order will be delivered within 48 hours.

We have a wide range of customers throughout Europe, with the UK and France being our biggest markets. Despite its recent economic record, the latter is undoubtedly one of the wealthiest countries in Europe, with a high concentration of millionaires who are likely to want to diversify their investments.

But it is not just millionaires who are attracted to the safe-haven benefits of silver. Indeed, our average order for silver is £3,500. Investors can also be ordinary working people who believe a small investment in silver, and/or gold, will help protect their overall wealth. An investor placing an order for £700 of silver recently told me that he believed that silver was "safe", "tangible" (primarily because he could hold it in his hands), "and that its value would be unaffected by anything happening in the world around us". And this brings us back to Kiyosaki once more. In many respects, his comments probably best illustrate the financial Zeitgeist. The events of the last five years have shaken some people's belief in the financial world. The collapse of Lehman Brothers, for example, has had far-reaching consequences and the global economic landscape is taking time to recover. It is in this environment that silver, a safe-haven asset, has come to the fore.

Chart 6: Share of world silver demand (2004-2013) and GDP compound annual growth rate, top ten markets in silver fabrication



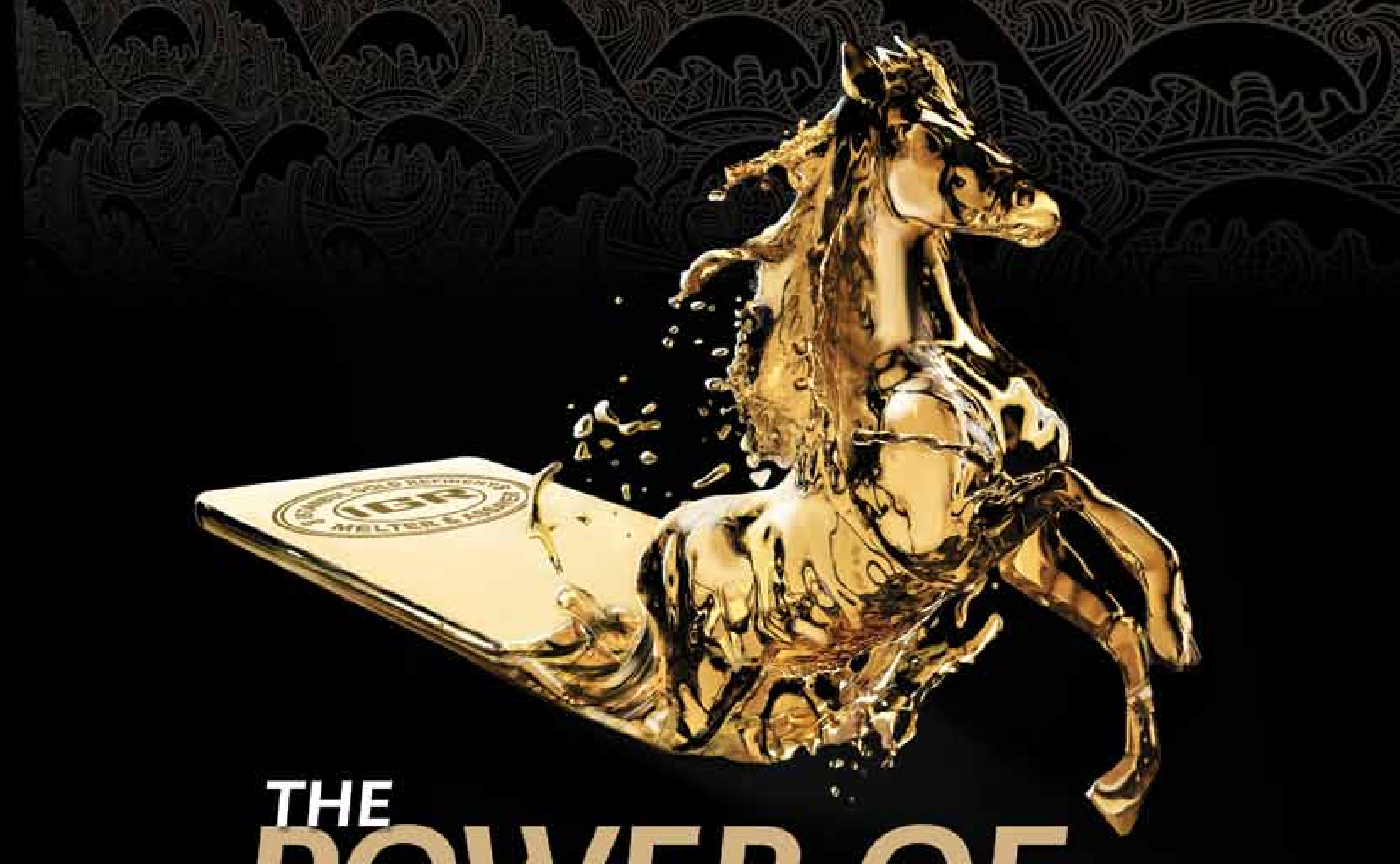
Source: 2014 World Silver Survey, Cebr World Economic League Table

Notes about the research

The Cebr research aimed to examine the macroeconomic determinants of demand for silver and present a comprehensive picture of the historic performance of the precious metal in comparison to other asset classes, as well as give a view for the drivers of the silver market going forward.

The research draws upon a wide variety of data. Data on historic price developments of gold and silver are retrieved from the London Bullion Market Association (LBMA), while data on demand and supply drivers of silver and gold are drawn from the Silver Institute's World Silver Survey and the World Gold Council's Gold Demand trends respectively. We further draw on the International Energy Agency's projections on solar photovoltaic capacity, the World Bank and International Monetary Fund's projections for industrial production, and the United Nations' Population Prospects. Finally, the data and analysis used are complemented by Cebr's proprietary macroeconomic forecasts from *The Prospects Service* and the *World Economic League Table*, which were used to inform views expressed in the report regarding the outlook of the silver market.

Daniel Marburger, Director of Silver-to-go
Daniel Marburger is Director of CoinInvest.com, which sells gold bars and coins to investors throughout Europe. During his time with CoinInvest.com, he has also set up sister company, Silver-to-go, which sells VAT-free silver coins and bars to private and institutional investors. Daniel joined the company in 2011. Prior to that, he was a banker within the private wealth management division of Commerzbank AG, formerly Dresdner Bank.



THE POWER OF PURITY

TURKEY • USA • SPAIN • GERMANY • DUBAI

IGR is the largest and the fastest growing precious metals refinery in Turkey and continues to work towards being one of the best and most reputable refineries in the precious metals industry worldwide.

IGR provides quality and reliability with rapid settlements, accurate assays and fast payment to the world's leading mining companies.

IGR has a ISO 14001 certification for its commitment to national environmental protection and its laboratory is accredited according to ISO 17025.

ISTANBUL GOLD REFINERY

igr.com.tr igrglobal.com

LBMA GOOD DELIVERY REFINER · DMCC DUBAI MULTI COMMODITIES CENTRE · IPMI INTERNATIONAL PRECIOUS METALS INSTITUTE · BORSA İSTANBUL

Regulation Update

By Sakhila Mirza, LBMA General Counsel

Fair Effective Markets Review (FEMR)

The broader review

The FEMR focuses on the fairness and effectiveness of the fixed income, currency and commodities (FICC) markets and how this might be improved. The LBMA plans to submit a response to the consultation, which was jointly launched by the Bank of England, HM Treasury and the Financial Conduct Authority on 27 October 2014. The LBMA will focus its response solely on the precious metals markets, which have been highlighted several times in the consultation. The deadline for this response is 31 January 2015. Market participants are encouraged to take part directly and to engage with the LBMA in their responses.

Benchmarks

FEMR also focuses on the regulation of benchmarks. A separate consultation was launched, again jointly by the Bank of England, HM Treasury and the Financial Conduct Authority, back in September, which focused on the regulation of benchmarks. The consultation proposed seven benchmarks to become regulated, including the LBMA Silver Price and the current Gold Fix (soon to become the LBMA Gold Price). The LBMA was involved in a roundtable discussion with HM Treasury to discuss whether these benchmarks should be included and also submitted a written response to the consultation. The LBMA is of the view that the LBMA Silver Price is not a significant benchmark and therefore should not be included in the list of benchmarks to become regulated.

The LBMA Silver Price, The LBMA Platinum and Palladium Price, The LBMA Gold Price

For further detail, please read LBMA News, Regulatory Affairs Committee update. In summary, the second half of 2014 has certainly bought about monumental changes to the London Precious Metals pricing mechanisms. The LBMA continues to talk to regulators to keep them updated on the developments in relation to these benchmarks.

OECD Update

The 8th Meeting of ICGLR-OECD-United Nations Group of Experts Joint Forum on Responsible Mineral Supply Chains took place in Kinshasa, Democratic Republic of Congo. This meeting provided the opportunity to review and discuss implementation of the OECD Due Diligence Guidance, the ICGLR Regional Certification Mechanism and other initiatives to enable responsible mineral supply chains. The LBMA was represented at the forum and took part in a panel discussion, speaking about the implementation of the LBMA Responsible Gold Guidance and how the LBMA would deal with instances of zero tolerance. The Forum was attended by more than 400 organisations, including some of the LBMA GDL refiners, as well as in-region and OECD governments.

EU Conflict Minerals – Draft Regulation

On 6 November 2014, the European Parliament's International Trade Committee (INTA) held a first exchange of views on the Commission's proposal for a conflict minerals Regulation. The draft Regulation establishes a system for supply chain due diligence for importers of tin, tantalum and tungsten, their ores and gold from conflict-affected areas. The debate focused on:

- whether such a system should be mandatory or voluntary (some MEPs favour a mandatory system whilst others believe this will deter suppliers away from conflict-struck areas);
- how it would be linked to existing international rules (such as the Dodd-Frank Act); and
- the definition of conflict areas (a representative of the European Commission emphasised that there should be no list of conflict areas but instead a more dynamic system).

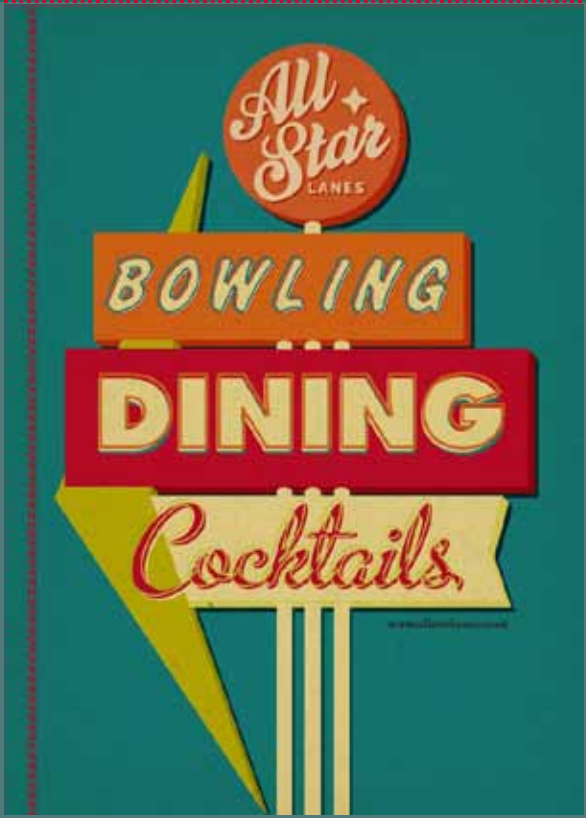
Furthermore, the draft Regulation requires banks and other downstream participants to arrange an independent third-party audit. The EU believes that banks should be audited to prove how they import conflict-free materials into the EU. The LBMA has expressed that such audits are not consistent with the OECD Guidance and are unnecessarily onerous, as well as duplicative due to the Responsible Gold programme.

Responsible Gold Guidance (RGG)

Russian Bullion Forum – Outreach & Implementation

The LBMA attended the Russian Bullion Forum, which was held in Moscow on 4 December 2014. The LBMA also met with refiners and the Gokhran (the State Precious Metals and Gems Repository – an institution under the Russian Ministry of Finance) to discuss the implementation of the Responsible Gold Guidance and aid with implementation.

LBMA ANNUAL PARTY



Thursday 26th February 2015

18:00 until late

All Star Lanes

Victoria House

Bloomsbury Place

London WC1B 4DA

www.allstarlanes.co.uk/venues/holborn/

The theme of the party is *Rock 'n' Roll*
1950s dress encouraged

Members & Associates only

Registration now open

Contact Humaira Afzal at events@lbma.org.uk

DIARY OF EVENTS 2015

FEB

09-12
21st African Mining Indaba 2015
Cape Town, South Africa
www.minuingindaba.com/

10
10th Russian Precious Metals Summit 2015
Moscow, Russia
www.russianmetalssummit.com/

23-24
Colombia Mining Summit
Bogota, Colombia
www.latinmarkets.org/forums/

MAR

08-10
6th LBMA Assaying & Refining Seminar
The Millennium Hotel, Grosvenor Square, London
www.lbma.org.uk

18-20
Mining Investment Asia 2015
Singapore
www.mininginvestmentasia.com/

23-27
Mines and Money
Hong Kong
www.minesandmoney.com/hongkong/

APR

12-13
Dubai Precious Metals Conference 2015
Dubai, UAE
www.dpmc.ae

14-16
European Gold Forum
Zurich, Switzerland
www.denvergold.org/gold-forums

20-21
121 Mining Investment
155 Bishopsgate, London
www.weare121.com/121-events/

MAY

18-22
LPPM Platinum Week 2015
London
www.lppm.com

25-27
Asia Mining Congress 2015
Singapore
www.terrapinn.com/conference/asia-mining-congress/index.stm

26-28
Mines and Money
Beijing, China
www.minesandmoney.com/beijing/

JUN

01-02
Peru Mining Summit
Lima, Peru
www.latinmarkets.org/forums/peru-mining-summit/

13-16
IPMI 39th Conference
San Antonio, Texas
www.ipmi.org

AUG

03-05
Diggers & Dealers Forum 2015
Kalgoorlie, Australia
www.diggersndealers.com.au/

SEP

23-25
Precious Metals Summit
Colorado, USA
www.precioussummit.com/

OCT

12-16
LME Week 2015
www.lme.com

18-20
LBMA Precious Metals Conference 2015
Vienna, Austria
www.lbma.org.uk

LBMA News

By Ruth Crowell, Chief Executive, LBMA

MEMBERSHIP

Citibank was reclassified as a spot Market Maker on 25 September and Morgan Stanley was reclassified as a spot and options Market Maker on 16 October. This brings the total number of LBMA Market Makers to 13. The full list of Market Makers on the LBMA website shows the products (spot, forwards and options) provided by each company.

On 7 October, China Construction Banking Corporation was admitted as an Ordinary Member.

These changes brought the membership to 146 companies, comprising 77 Members (of which 13 are Market Makers) and 69 are Associates.

GOOD DELIVERY LIST

On 21 November 2014, the silver refinery of Umicore Precious Metals (Thailand) Ltd was admitted to the Silver List. This increased the number of countries represented on the Good Delivery List to 28.

There are now currently 73 refiners on the Gold Good Delivery List and 80 refiners on the Silver Good Delivery List.

COMMITTEES

Management Committee
The Committee worked with the Executive, the Regulatory Affairs Committee and the Market Makers group on implementing a number of important changes relating to the precious metals benchmark prices. The Committee approved the set-up of a 100% fully owned subsidiary of the LBMA to own the intellectual property (IP) rights in the new benchmark prices, Precious Metals Prices Limited (PMPL). PMPL was incorporated on 28 November 2014 and is run by the LBMA Executive, independent of the LBMA Management Committee. This has also required the LBMA to formally expand its scope into all four precious metals. More detail on the work done can be found in Regulatory Affairs Committee below.

The Committee is also focusing on the long-term strategy and structure of the Association. This is in view of the fact that the market needs more support given the changing regulatory and infrastructure landscape. While its role as a hybrid trade association and market body has evolved organically over time, there is a need to proactively ensure it is equipped to adequately support the market on a long-term basis. The LBMA's role in providing market infrastructure has recently increased from the Good Delivery accreditation to encompass benchmarks. Going forward, it will have broader scope of work to contend with as regulation increases. These regulations include US Dodd-Frank, MIFID and MIFIR, as well as the potential regulation resulting from the Fair Effective Markets Review (FEMR). FEMR focuses not only on benchmarks, but on the entire structure and conduct of the London precious metals market.

The Committee needs to position the LBMA in a way that allows the Association to deal with the changes that may potentially affect the market. The Committee is therefore considering the structure, governance and organisation of the LBMA to ensure that it continues to meet the requirements of its members in an ever changing financial environment. This involves consultation with other market participants and organisations, as well as the regulators.

The Committee also reviewed the work of the Sub-Committees below. This included assisting the PAC in delivering yet another successful LBMA conference in Lima, Peru (see page 12 for details).

Regulatory Affairs Committee
The main focus of the Committee in recent months has been co-ordinating with the Management Committee and the Market Makers about important changes to the administration of the gold, silver, platinum and palladium precious metals benchmark prices.

Following consultation with the market (which included holding two market surveys, a seminar and various meetings with market participants, solution providers and the regulator), the LBMA announced on 7 November that ICE Benchmark Administration (IBA) had been selected to be the third-party administrator for the LBMA Gold Price. IBA is an independent specialist benchmark administrator and will provide the price platform and calculation methodology, as well as the overall administration and governance for the LBMA Gold Price. The LBMA will hold the intellectual property (IP) rights. The new LBMA Gold Price is scheduled to be introduced in Q1 2015.

Only 10 days before the 1 December launch, the LBMA agreed to take ownership of the historic and future intellectual property of the platinum and palladium prices. This was in response to a request from the London Platinum & Palladium Fixing Company Limited (LPPFCL) and after consultation with the Regulatory Affairs Committee and the Management Committee.
This transfer of ownership took effect on 1 December, and the prices are now known as the LBMA Platinum Price and the LBMA Palladium Price. The London Metal Exchange (LME) provides the price platform, calculation methodology, administration and governance for both prices, with the intellectual property (IP) rights under the ownership of the LBMA.

As reported in the last edition of the *Alchemist*, the LBMA Silver Price was successfully implemented on 15 August, marking the end of the 117 years of the London Silver Fix. The platform and the calculation methodology for the LBMA Silver Price are provided by CME Group, whereas Thomson Reuters has ultimate responsibility for the administration and governance. The LBMA holds the IP rights to the LBMA Silver Price. There are now six price participants that have been accredited to contribute to the LBMA Silver Price, three more than contributed to the historic silver fix price.

Once the LBMA Gold Price is introduced in Q1 2015, the LBMA will own the intellectual property rights for all four metals. There have been concerns raised that the market has become fragmented with three different platforms covering the four precious metal prices. However, it is worth noting that whilst there are three different platforms, they do share broadly the same features, namely, they are electronic, auditable, tradable and auction-based solutions.
With these auctions come improved transparency, more direct participants and, most importantly, independent administrators. All market participants are encouraged to contact the administrators to find out more regarding becoming a direct participant.

The LBMA also announced in November that the Gold Forward Offered Rate (GOFO) dataset will be discontinued and will no longer be published by the LBMA after 30 January 2015. This was due to contributors to the dataset becoming less active in these markets and, after 30 January, there would be insufficient number of contributors to create a critical mass. Gold IRS market participants looking to wind down existing trades are encouraged to contact TriOptima's triReduce Team (Mattias.palm@trioptima.com).

As the tsunami of regulations continues to push forward, the Committee remains focused on understanding the impact that both European and US regulation will have on the Precious Metals Markets. For further information, please read the Regulation Update on page 26.

Physical Committee
Since the last edition of the *Alchemist*, only one new refiner has been added to the Good Delivery List – in contrast to the record number of accreditations mentioned in *Alchemist* issue 75. The pace of work in this area has accordingly returned to a more normal level. However, there are still a number of active applications underway (including three for silver and two for gold), with several more at an advanced stage of preparation.

The Committee's views on vaulting issues are informed by discussions within the Vault Managers group, which meets each quarter to discuss a wide range of basic vaulting issues. The aim is to ensure consistency in the way that the

various vaults carry out operations such as inspections, weighing, assembly of bars on pallets and the formatting of the associated weight lists. The Committee has accepted in principle two recommendations from the Vault Managers. The first concerns year marks. Since 2008, refiners have been required to show a year mark on the bar, either as a separate 4-digit number or as the first 4 characters of the bar number (of up to 10 digits in total). The Vault Managers expressed a clear preference for the latter option, though it is recognised that, in some cases, this might not be practicable because of the 10-digit limit for bar numbers and they also indicated that, whenever possible, an indication of the year of production should be given in weight lists. This would avoid the danger of apparently duplicate bars appearing on published lists (i.e. when a refiner's bars produced in different years are given the same bar number). The next version of the Good Delivery Rules (to be published in January 2015) will clarify how these recommendations will be implemented, e.g. describing the degree to which they will be mandatory.

The Vault Managers' second recommendation was that all refiners (and other depositors) should submit their weight lists as Excel spreadsheets in addition to a non-alterable format. This requirement was incorporated into the new version of the Good Delivery Rules, which was published on the LBMA website in September. This contains a number of changes which refiners seeking accreditation need to be aware of when preparing their applications.

The other main topic discussed by the Vault Managers has been the Vault Operators Accreditation Scheme whose development continues steadily. It is no easy task to produce generic learning and testing material based on the different systems in use in the 12 vaults affiliated to the LBMA. Work on the first of seven modules is now well advanced and is expected to be complete by February 2015.

The technical work carried out by the Referees group in support of the Good Delivery System also falls within the purview of the Committee. At their most recent meetings, the Referees have focused on the arrangements for the Proficiency Testing Scheme which has recently been initiated and whose results will be published in late February 2015. As in the three previous exercises, the sample chosen is a gold alloy within the Good Delivery range – this time at the upper end. An important change is that labs that use ICP to measure the levels of impurities and calculate the fineness by difference are being asked to report on all the significant impurities detected. This will allow them to compare their analytical results with those of the other ICP labs (whose number has increased steadily in the three years that gold Proficiency Testing has been carried out by the LBMA. The Referees agreed to widen possible participation by permitting LBMA members, official assay offices and silver GD refiners to take part. It is gratifying that, partly as a result, the number of participants has increased sharply – by almost 50% – since last year's survey.

The report on the Proficiency Testing Scheme will be made available to participants in time for it to be discussed at the LBMA's forthcoming Assaying and Refining Conference, which will take place in London from 8-10 March 2015. See page 31 for details.

In response to a request from the Committee, the Referees have made good progress in developing proposed new acceptance criteria for Good Delivery applications and Proactive Monitoring. It is clear that the introduction of slightly tighter criteria is justifiable, in part because of the general increase in assaying accuracy on the part of GD refiners' labs. It is hoped that the new criteria will be agreed in time for publication in the GD Rules in the New Year.

Public Affairs Committee
The main focus for the PAC was finalising the arrangements for the conference in Lima on 9-11 November, as well as the biennial dinner on 1 December. The hard work paid off, with both events proving to be a great success. Reviews of both events can be found on page 12 and page 14 respectively.

The Committee is now concentrating on plans for the 2015 LBMA/LPPM Conference in Vienna, Austria, which will be held at the Hilton Hotel on 18-20 October. A high-quality programme of speakers and topics is currently being developed and any suggestions for papers or topics should be sent to the Executive. The PAC is discussing ways to ensure that the quality of the event is not compromised by overcrowding, given that Vienna will be a popular venue for many market participants.

The Committee agreed that five charities should benefit from the LBMA's 2014 charitable fund, as outlined below:

- Childhope. Offers recreational and educational support for children exploited in Peru.
- Future Focus. Offers assistance in developing the skills of young people living in Hanwell, West London.
- WorldVision. Provides support to children suffering from the disorder in Syria.
- Action for Children. Supports the most neglected and disadvantaged children in the UK.
- Great Ormond Street Hospital. Offers specialist medical support to children.

Finance Committee
The recent focus of the Committee has been to develop the budget for the next three years and review current performance. The Committee reviewed the 2014 budgetary performance, noting the unexpected costs raised by the precious metals pricing work. The LBMA's proactive involvement has required additional legal and consultant costs which were not envisaged in the original budget as well as additional staff costs to deal with the Association's ever growing workload. The Committee has also been reviewing the budget from recent LBMA events including the conference in Peru and the biennial dinner as well as the budget for the Assay & Refining Conference in March. Income has been supported by an ever growing number of membership and GDL applications.

Committee Vacancies
A vacancy has arisen on the PAC following the resignation of Tom Kendall, Credit Suisse. We would like to thank Tom for all his helpful advice and support during his time on the committee. The PAC is primarily responsible for organising events, most notably the LBMA Conference, as well as the marketing material and publications of the Association. Anyone interested in applying for the vacancy should send a brief statement of their market experience and suitability for the role to aelred.connelly@lbma.org.uk.

LBMA Staff
The LBMA is sorry to announce the departure of Collett Roberts, as the LBMA's Events Co-ordinator. Collett will be leaving at the end of January 2015 after more than six years of service. She has made an important contribution to the work of the Association and will be greatly missed. We wish her all the best for the future.

The Alchemist is published quarterly by the LBMA. If you would like to contribute an article to the Alchemist or if you require further information please contact
Aelred Connelly,
London Bullion Market Association
1-2 Royal Exchange Buildings
Royal Exchange
London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: aelred.connelly@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

Obituary

David Saunders – A true gentleman of the bullion market

It is with great regret that we announce the recent death of David Saunders, following a short illness. David was a much respected stalwart of the London bullion market for many years, working for Sharps Pixley, Mocatta and Goldsmid and Mase Westpae, among others. Here three of his former friends and work colleagues pay their own personal tribute to him.

John Coley writes:
David was born in Portsmouth on 26 November 1931. He was educated at Southern Grammar School where he enjoyed considerable sporting success. He was undefeated Southern Counties boxing champion, represented Hampshire at cross-country running and played good-quality football and cricket in the Southend area. Being from a military family, he entered Sandhurst but decided it was not for him and joined Rothschild before later moving to Sharps Pixley as a Director.

David was a real family man. He married his sweetheart Jackie and had four lovely children: Lynette, Susan, Sarah and Stuart, and 10 grandchildren. From the mid 1960s onwards, the family home was in Petersfield, Hampshire, opposite my parent's house where I was still living. In one of those seminal moments, it was David who invited me to work at Sharps Pixley as they were looking for a young man to start in the dealing room: how different from today when there are files thick with applicants! It is something for which I have always been so grateful. Even before working for him, I used to look up to this kindly man of strong character with his smart City overcoat complete with velvet collar, his tightly rolled umbrella and specially rolled bowler hat! We played cricket together both as teammate and opposition in our annual match versus Mocatta, and I can instantly recall his unique bowling action. His golf swing was even more esoteric but effective, especially around his home course in Petersfield where he served as Captain, Treasurer and later as President. He was my neighbour, my boss, my mentor and my friend, and I shall miss him greatly.

Colin Griffith writes:
David joined Mocatta & Goldsmid (M&G) in 1973, the same month as I did, and he used to say *"us new boys must stick together and show them we do know what we are doing"*, which was rather amusing as I only had a few years' dealing experience on the LME, whilst David was already a well- respected figure in the bullion market from his time at Rothschild & Sharps. Sitting opposite David for 10 years was a significant learning curve for me, and I always admired his ability to cut to the chase and see the big picture even in stressful times of high volatility.

My first two business trips were both made with David and they were always meticulously planned to ensure they were both enjoyable and constructive. David always had the vision of servicing the customers on a 24-hour basis, so after the establishment of a New York office, he decided that we should open an office in Hong Kong to take advantage of its growing gold market. This was when Mocatta Hong Kong was established, with David as a Director and Dick Gazmararian as the MD.

Yes, David loved his sport – he was always available for the cricket match against Sharps and for any golf days, particularly the dealing room golf trips, and to use the bowling green that sat next to our Finsbury Park offices whenever possible.

After he left M&G, I kept in touch with him on a regular basis and, in late 1987, I succeeded him in running the precious metals division of Credit Suisse London. As expected, he was most helpful during the hand-over of responsibilities.

Dick Gazmararian writes:
I first met David in late 1975 when he and Keith Smith interviewed me for the job at Mocatta in Hong Kong. For the next eight years, I relied a great deal on David's extensive knowledge of the gold market and his guidance.

David was a great proponent of the London market and he encouraged me to develop the concept of trading "Loco London Gold" in the Asian time zone in parallel with the Hong Kong Gold & Silver Exchange. This led to the development of a very successful arbitrage market and promoted London as the pre-eminent gold trading centre.

In 1988, I was fortunate to have David work with me at Mase Westpac (MW) in London as Deputy Managing Director and he also spent some time in our offices in Hong Kong.

He contributed a great deal to both MW and the continual development of London as a major trading centre. He was respected throughout the market for his integrity, knowledge and leadership, and made a significant contribution to the internationalisation of gold trading in the late 1980s and early 1990s.

Market Moves

Bikash Agarwal to join
Heraeus Singapore

Bikash Agarwal will join Heraeus Singapore as Sales and Marketing Manager for the Trading Division from January 2015. He has been working at Heraeus since March 2013 in the area of Finance/Controlling. Prior to joining Heraeus, he worked for over two years as Senior Rating Analyst at ICRA Limited (Subsidiary of Moody´s) focussing on ferrous metals. He will drive the sales activities in the region and widen the range of precious metal related services offered by Heraeus.

Bernd Bauer joins
Agosi, Pforzheim

On 1 November, 2014 Bernd Bauer joined Allgemeine Gold- und Silberscheideanstalt AG, Pforzheim/Germany, as Divisional Sales Manager Precious Metal Services. Prior to this step, he started his career with Sparkasse Pforzheim Calw, building up almost 10 years of well-based experience in the precious metals market and the entire range of metals trading, hedging, financing and investment solutions as Head of Precious Metals Trading. At Agosi, he will further develop the company's precious metals activities, both in the European market and on a global scale.

Schöne Edelmetaal is 275 years old

The oldest LBMA Good Delivery refiner, Schöne Edelmetaal (Amsterdam, The Netherlands) has reached the entirely respectable age of 275 years. This remarkable event was celebrated with its customers on 3 November. Founded in 1739 Schöne quickly became the preferred assaying and refining partner of the Amsterdam Bank, one of the first central banking institutions.

The Sixth LBMA Assaying and Refining Conference

The Millennium Hotel, Grosvenor Square, Mayfair, London
8 - 10 March, 2015

Scope

Assaying, analysis and refining of precious metals, primarily covering gold and silver.

Who should attend?

Assayers and Analysts, Refinery Managers and Engineers, and anyone interested in hearing about the latest technical developments or in networking with members of their peer group located in precious metal refineries around the world.

At the last event, held in March 2013, 162 delegates from 27 countries participated.

Outline Programme

- Sunday 8 March
  Evening: Welcome Reception
- Monday 9 March
  Plenary Sessions covering a wide range of topics*
  Evening: Conference Dinner
- Tuesday 10 March
  Plenary Sessions covering a wide range of topics*

Details of the speakers can be downloaded from the LBMA website:* ***www.LBMA.org.uk*

Registration

Registration will open in January, please refer to the LBMA website for further details.

Fees (all subject to 20% VAT)

Conference Registration

The Conference Fee includes attendance at the plenary sessions, the welcome reception, lunches on 9 and 10 March, and the Conference Dinner:

- LBMA Members, Associates and Good Delivery Refiners: **£450**
- Others: **£550**

Optional Events

The Fee for each of the following optional events is £60 (plus 20% VAT). It includes a light lunch following the event as well as entrance fees, for the visit to the Royal Institution, and transport (in the case of the visit to Inspectorate).

The London Assay Office

The London Assay Office, located near St Paul's cathedral, is responsible for the assay-checking and hall-marking of precious metal products (both locally manufactured and imported). It is located at the rear of the livery hall of the Goldsmiths Company, one of oldest guilds in the City of London, with a history stretching back to 1300. The visit will include a quick tour of the livery hall, one of the finest in the City of London, followed by a tour of the assaying and hall-marking sections.

Inspectorate International

Inspectorate, one of the LBMA's Good Delivery Supervisors, is located at Witham in Essex, a 45-minute journey from London. The visit will focus on Inspectorate's wide-ranging facilities for sampling, assaying and analysing a range of metals and minerals.

Although visits to the other LBMA supervisors, ALS and Alex Stewart International (both of which are located in Liverpool), are not included in the programme as options, both companies would be delighted to receive visits from delegates attending the Conference.

The Royal Institution

The Royal Institution is without doubt the place in London that anyone interested in the history of science in the UK should visit. Founded in March 1799, with the aim of introducing new technologies and teaching science to the general public, it has been at its present location in Albemarle Street in Mayfair ever since. Some of the great names who did their work here include Dewar, Bragg, Davy and especially Faraday. An idea of some of the iconic items that will be seen during the tour can be viewed on the RI's website: **www.rigb.org**.

Workshop on X-ray Fluorescence Spectrometry

Led by Dr Mike Hinds, Assay Chemist, Royal Canadian Mint

Due to its wide analytical range (ppm to %), simple sample preparations and least-cost-per-unit analysis, X-ray Fluorescence Spectrometry (XRF) has been widely used by many industry sectors, such as cement, metals, glass, petrochemicals, pharmaceuticals and mineral processing as a primary tool for analysis of their materials. This workshop will explain how XRF works and what makes it different from other atomic spectrometric techniques. The different types of XRF spectrometers will be discussed, and the advantages, disadvantages and limitations of each type of XRF will be highlighted (wavelength dispersive XRF versus energy dispersive XRF versus hand-held XRF). The workshop will end with a review of some examples of how XRF can be used for precious metal analyses.

SECURED | INSURED | EFFICIENT

GLOBAL STORAGE

Private and Discrete, Non-Bank bullion depositories in Canada and the United States.

- Secure and fully insured allocated & segregated storage
- Private/Confidential
- Insurance underwritten by Lloyd's of London
- Efficient global distribution, daily reporting and tracking

IDS INTERNATIONAL DEPOSITORY SERVICES GROUP

Ontario, Canada: 855-362-2431 | Delaware, USA: 888-322-6150

LBMA ASSOCIATE • IIROC APPROVED (in Canada)

Independently-operated subsidiaries of Dillon Gage Metals, a precious metals leader for over 35 years.

A Baptism of Fire

Editorial Comment by Grant Angwin, General Manager of Johnson Matthey and Chairman of the LBMA

I have certainly experienced a baptism of fire since I took over the reins as Chairman of the LBMA in July.

As David Gornall rode off into the sunset, I found myself jumping out of the fire and into the frying pan. So many changes in so short a space of time. It is a true reflection of the dedication of the team at the LBMA that we have coped with all that has been thrown at us and, on the whole, have come out unscathed. Despite the fact that we are an Association, the rules of management still apply: surround yourself with good and strong people. The time zone difference sometimes pays havoc with my sleep patterns such as when Ruth – rarely I must admit – calls me in the middle of the night. I also admit to having done the same to her! The role has afforded me the opportunity for a few more trips back to my home country and my two daughters are delighted by this. I must thank Johnson Matthey for their support in this.

Since July I have been focused on the major changes to the daily spot prices for the London precious metals markets. The fixes, or 'daily price auctions' as we call them now, will continue on in new electronic & IOSCO compliant forms while the three fixing companies are being wound down. CME Group, Thomson Reuters/LME and IBA now provide independent administration to these three auctions, and the LBMA holds the intellectual property for all four prices, on behalf of the market. All four prices operate on similar electronic, auction-based platforms with different administrators chosen through market consensus. All of these price auctions are open to new participants. We've been delighted to see the number of direct participants in the LBMA Silver Price double from three at launch to six today. We look forward to more participants joining soon, especially the forthcoming LBMA Gold Price, scheduled to launch in Q1 2015.

Given the long history of the fixes, with the Silver Fix starting in 1897, 2014 has been a landmark year. The origins of the London bullion market can be traced back much further, to the 1670s, when Moses Mocatta crossed the North Sea from Amsterdam to London and founded a brokerage firm in Camomile Street – the Bank of England being formed a couple of decades following. So this is not the first time we have seen major events in the market. Aside from the demise of the gold standard, the announcement by the Silver Fixing Company that they would be winding down in August has had one of the biggest impacts on the precious metals market. Given current market conditions and regulatory changes, it is more important than ever that the three remaining organisations, the LBMA, LPPM and the LPMCL, continue to work together to provide the infrastructure and, more importantly, the voice for London, as a global centre, in this challenging period for the precious metals market.

I am delighted to say that we will be working with the LPPM again with regards to the 2015 Conference. Many members of the LBMA are also members of the LPPM. It is my strong personal opinion that the two organisations must continue to investigate ways in which we can collaborate more effectively on areas that are of mutual interest to our joint membership. Such collaboration is demonstrated with the LBMA assuming the Intellectual Property rights for the Platinum and Palladium fixes.

The LBMA's involvement in the benchmarks has fundamentally changed the work load of the Association. The LBMA has always provided infrastructure to the London Market via the Good Delivery Lists, however, the addition of the benchmarks has greatly enhanced the remit of the organisation. I'm delighted to say that business has continued at its normal high standard even considering the increased workload. The LBMA held two major events in 2014: the LBMA Bullion Market Forum in Singapore as well as the annual Conference in Peru. Both events had nearly 400 attendees and were well received by both the market and attendees. For those of you who found Peru to be a long way from home, we look forward to hosting you closer to home in Vienna later this year. Our Association is also planning an Assaying and Refining Seminar in March, as well as looking at a continued presence in Asia through various outreach and shared events. With regards to Good Delivery, the LBMA welcomed its 100th accredited refiner to the Good Delivery List. The importance and recognition of this programme continues to go from strength to strength. Membership to the association has remained steady despite some losses through mergers, and we are pleased to see a constant stream of interest in joining the Association from around the world.

The LBMA Executive Office has had some significant changes in leadership this year. Ruth Crowell was promoted to Chief Executive in January 2014 and it has certainly been a baptism by fire for Ruth as well. I would like to use this forum to thank Ruth and her team for all their hard work this year. We have begun the process of strengthening the executive team: Sakhila Mirza joins us as General Counsel, along with Sunny Field as Operations Director. Both Sakhila and Sunny bring a wealth of experience to these roles, along with a vision on how to develop the role of the LBMA. Early next year, the team will be joined by Neil Harby, who will be taking on the role of heading one of the cornerstones of our association – the Good Delivery List. Neil joins us from the Rand Refinery – one of the accredited LBMA referees – where he headed up the assaying and evaluation processes as well as being part of the executive management team.

The strategy for the LBMA, as well as the market as a whole, needs to be developed more than ever as many banks are beginning to exit commodities along with benchmarks due to the shifting regulatory environment. The LBMA will be participating in the consultation for the Bank of England, FCA and HM Treasury's Fair & Effective Market Review, which reviews the Fixed Income, Currency and Commodity markets. This will bring significant changes to the regulatory cover of the London precious metals markets, and recommendations will be announced in June 2015. Changes in the economic, political and regulatory environment have given the Association the opportunity to gain further recognition as the world's competent authority for bullion; however, they raise the need for yet more leadership from the LBMA. While there are still many more regulatory challenges ahead of us, the co-ordination of the market via the Members of the Association and the LBMA Executive will allow us to continue to face those in a more informed and more co-ordinated manner. The structure of our Association will need to change as regulation becomes more embedded in our industry and all stakeholders require more transparency. As these and other changes take effect the governance, organisation and financing of the Association will be very different to what we know today.

2015 will continue in the same vein as 2014 for me and the executive. This can be summed up in one word 'change'. The business and the market that Moses Mocatta embraced some 350 years ago will continue to change at a rate of knots that he would not have been able to comprehend. Together with all the membership, I have no doubt that we can create an organisation that can truly represent our industry – from miner to consumer.

May I wish you all a prosperous and happy New Year in 2015.

Grant Angwin, General Manager of Johnson Matthey and Chairman of the LBMA

facing facts

William Tankard, Research Director, Precious Metals Mining and Dante Aranda, Precious Metals Mining Analyst, Thomson Reuters GFMS.

An Interim Review of Silver Production

At the recent Annual Silver Industry Dinner in New York City, hosted by the Silver Institute, the GFMS team delivered a statistical update on the market, including expectations for mine production. On the back of this and in light of the moves lower by the silver price, it seems an appropriate time to take a closer look at some of the trends in the silver mining space.

Despite the decline in silver and most by-product metal prices seen over the year, we expect that global silver mine production will rise by 32 Moz in 2014. A significant portion of the increase we are witnessing this year can be attributed to three major silver-producing mines, in Guatemala, Mexico and Chile, which combined are on track to contribute an increase of around 32 Moz year-on-year. Other major producers' expected output is detailed in the table below.

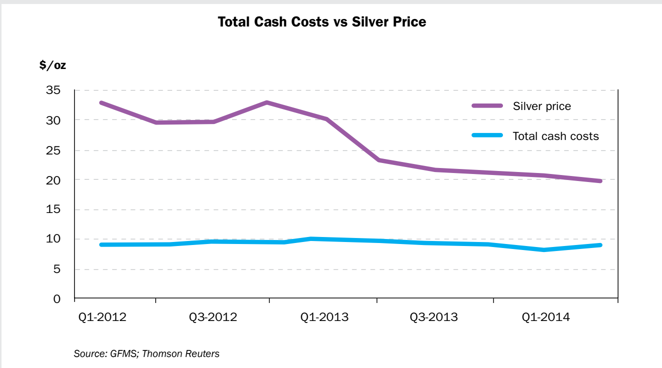
Guatemalan production has been on the rise in the past year and is expected to grow by 144% in 2014. Commercial production was achieved at Escobal during the first quarter of 2014 with silver grades, mill throughput and recoveries in line with the mine plan. In the 9-month year-to-date period, Escobal produced 15 Moz of silver – a comparable order of magnitude to Canada's output for the year. Escobal has overtaken Marlin as Guatemala's largest silver producer and is on track to produce between 18-21 Moz by year-end.

In Mexico, official statistics point to a 12 Moz increase year-on-year to just under 200 Moz. Over the first nine months, Peñasquito has produced an additional 5 Moz compared to last year, explained by a 29% increase in processed silver grades. In 2013, silver yields were lower owing to more refractory ore.

Elsewhere in the country, the ramp-ups at Del Toro, Saucito and San Jose have added a combined 4 Moz in the year-to-date.

Chilean output, meanwhile, is expected to record a gain in the region of 5 Moz to a total of 44 Moz, aided by new supply from the primary copper mine, Ministro Hales. Over 2014, the 15% devaluation of the Chilean peso has aided miners in the country to contain cost inflation of energy and labour wages. Total silver production is estimated to reach 44 Moz, extending gains for a second consecutive year.

However, gains in the aforementioned countries were partially offset by losses in Canada (-5 Moz) and Kazakhstan (-4 Moz), explained by mine shutdowns and lower grades. In addition, we forecast Australia will register a 4 Moz drop year-on-year, predominantly led by a fall in production at the world's largest primary silver mine, Cannington. The drop in mine output is due to an 18% fall in silver processed grades year-on-year, which substantially outweighed a 4% increase in throughput.



Top 15 Silver Producing Countries

Ranking 2013	2014F	Country	Output (Moz) 2013	2014F
1	1	Mexico	187	199
2	2	Peru	118	121
3	3	China	118	119
4	4	Australia	59	55
5	5	Russia	45	45
7	6	Chile	39	44
6	7	Bolivia	41	42
8	8	Poland	38	37
9	9	United States	34	36
10	10	Argentina	25	27
15	11	Guatemala	10	25
12	12	Kazakhstan	20	16
11	13	Canada	21	16
14	14	Sweden	11	12
13	15	India	12	10

Source: GFMS, Thomson Reuters, The Silver Institute

The sharp decline in the silver price, which fell by 25% year-on-year in the first half of the year, has had a marked effect on the financial performance of primary silver producers – a group that will account for some 30% of global mine supply in 2014. In response to this squeeze, as has been the case in the gold industry, costs are being reined in wherever possible. Primary producers' Total Cash Costs in the first half of the year averaged US$8.51/oz, a 13% decrease year-on-year from US$9.77/oz. This implies a 56% simple cash margin, the leanest for a decade. At first impression, this might appear to be an attractive margin, though it should be made clear that Total Cash Costs exclude capital expenditure, corporate overheads and exploration costs. Last year, these items comprised some 30% of incurred cash expenses.

To demonstrate, in the first half of 2013, the aggregate financial performance of four leading primary silver producers (Fresnillo, Coeur Mining, Pan American Silver and Hecla) recorded a narrow loss, of $32 million. Over the year that followed, these producers' exploration expenditure was cut by 42% year-on-year and, over the same period, capital expenditure was reined in by 27%. As a consequence of these cost reduction initiatives and broader optimisation efforts at the operating level, the group of producers brought aggregate net income back to positive $61 million in the first half of 2014. With spot prices having recently traded down to $16/oz, it is clear that further rounds of rationalisation will be needed in the silver industry.

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS
Having joined GFMS Ltd as a Metals Analyst in 2005 to cover the mining sector, William was brought across to Thomson Reuters in GFMS' 2011 acquisition and holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. He has accountability for the mining team's research output of global production, mining costs and producer hedging research across the precious metals.

Dante Aranda began his career in the commodity market in 2010 when he joined Thomson Reuters in Toronto as a commodities specialist, working with a broad range of natural resources companies. Now based in London as a precious metals mining analyst, he is heavily involved in the team's modelling of mine production and industry costs using Matlab and VBA and is also a leading contributor to the GFMS team's technical analysis. Prior to Thomson Reuters, he worked at Banco de Credito del Peru as a Junior Trader on the FX structured products desk. He holds a BSc. (Honours) in Financial Economics & Applied Statistics from the University of Toronto, where he specialised in Econometrics.


The conference by the industry for the industry
LBMA Precious Metals Conference 2015
18-20 October 2015
Hilton Vienna Hotel
Vienna, Austria
There's a place for all market players at the LBMA Conference – Save the Date

PAMP®

Produits Artistiques Metaux Precieux

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up uf doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

Trust is Precious

The largest selection of bullion bars in the world, from 12.5 - kilogram to 1 - gram bars. PAMP bars are accepted as 'Good Delivery' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM).
PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold and Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only three 'Good Delivery Referees' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for a variety of sophisticated precious metals products, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set varations, or with partial or total gold plating.

PAMP SA
6874 Castel San Pietro | Switzerland

T +41 91 695 04 50 | F +41 91 695 04 51
info@pamp.com | www.pamp.com

An MKS PAMP GROUP Company

LBMA

Alchemist

The London Bullion Market Association ISSUE 77 May 2015

In this issue

The LBMA has partnered with the Shanghai Gold Exchange to hold a Bullion Market one day Forum on 25 June, 2015. Details on registration, the speaker programme and hotel accommodation are available on the LBMA website.

Because you need precious metals solutions, we offer trusted global insight and expertise

Corporates & Markets

Whatever your activities in the precious metals market, it pays to be with a partner with global presence and trusted experience across the value chain.

Commerzbank delivers insight, distribution and product structuring capabilities across the full spectrum of physical and non-physical precious metals solutions.

- Gold, Silver, Platinum, Palladium, Rhodium and Ruthenium trading on a Spot and Forward basis
- Unallocated, Pool and Allocated accounts
- Sales, Lending and Leasing of metal in both bar and industrial forms
- Full range of OTC Swaps, Options and other derivatives
- Retail Warrants and Certificates, Structured Notes, Certificates and Deposits
- Refinery services
- Trading centres in Frankfurt, London, Luxembourg and Singapore

Bloomberg	CZPM	Asia	+852 3988 0873
Reuters	CBGL	Europe	+44 20 7475 4878
Direct contact	+352 477 911 2540	Americas	+1 212 336 1000

This communication is issued by Commerzbank. Commerzbank AG, London Branch is authorised by the German Federal Financial Supervisory Authority and the European Central Bank and subject to limited regulation by the Financial Conduct Authority and Prudential Regulation Authority. Details about the extent of our regulation by the Financial Conduct Authority and Prudential Regulation Authority are available from us on request. Copyright Commerzbank AG 2015.

COMMERZBANK

The bank at your side

London Precious Metal Prices: Raising the Benchmark

By Sakhila Mirza, LBMA General Counsel

Ruth Crowell observes the first auction of the new LBMA Gold Price on 20 March 2015

A 10-month journey

Over the last 10 months, the London bullion market has been subject to sweeping changes with regards to administration and ownership of precious metal benchmark prices for gold, silver and the PGMs.

The three fixing companies who had historically administered these prices are now dissolved and responsibility for the prices has transferred into the hands of independent administrators. The LBMA has also seen its role evolve during the last 10 months and it now owns all four prices.

The journey really began at the beginning of May 2014, when the LBMA only had responsibility for the Gold Forward Offered Rate (GOFO), as well as for the gold and silver forward curves in a joint partnership arrangement with the London Metal Exchange (LME). But by March 2015, both data sets had been discontinued, but the LBMA was not left empty handed, and instead had gained ownership of the four precious metals spot benchmarks. Two, gold and silver, became regulated on 1 April by the Financial Conduct Authority (FCA), along with six other price benchmarks. It certainly has been quite a journey for both the market and the LBMA over the last 10 months. In that time the LBMA has had to:

- launch two RFPs (Requests For Proposals Processes), two market seminars, numerous market surveys, and independent analysis to help understand the best proposal for the silver and gold prices;
- establish a new subsidiary (Precious Metals Prices Limited) under the LBMA, in order to own the intellectual property for all four precious metals benchmarks;
- respond to benchmark consultations launched by the regulators, which included the benchmark consultation under the Fair Effective Markets Review and then the Financial Conduct Authority's (FCA) consultation on the benchmark rules; and
- finally, act as facilitator between the market and the administrators during the implementation processes for all four metals.

Oh, and let me make a quick reference to my (and all lawyers') favourite topic – drafting numerous legal agreements!

All this, against the backdrop of the 'business as usual' agenda.

> *"Following the market consultation, made up of an RFP process, surveys and seminars, a market consensus emerged, with CME and Thompson Reuters (TR) selected to operate the LBMA Silver Price."*

From Fixing Companies to Independent Administrators

The LBMA historically has had nothing to do with the administration of the four precious metals daily spot prices. The silver and gold prices, for 100 years (give or take), and the platinum and palladium prices, for about 25 years, have been set by the respective Fixing Companies, all of which have now been wound down. The administration and calculation of the prices have been handed over to independent administrators as follows:

- LBMA Silver Price – CME and Thompson Reuters
- LBMA Platinum and Palladium Price - LME
- LBMA Gold Price – Ice Benchmark Administration (IBA)

The intellectual property all resides with the LBMA, in order to minimise any future market disruption.

Market Requirements and What Changed?

The Silver Fixing Company announced in May 2014, that with Deutsche standing down as a Fixing Member, it could no longer continue in its present form and it made the decision to wind down with effect from 15 August. The LBMA stepped in to work with the market to find and implement a solution to ensure that London and the global market had a silver price mechanism. All in three months! With the clock ticking, the LBMA launched a market consultation asking the market what it wanted. The consensus from the market concluded that it required:

- an independent administrator;
- an electronic auction-based platform;
- expansive participation; and
- an IOSCO Compliant solution.

Following the Silver Price Consultation, made up of RFP, surveys and seminars, a market consensus emerged, with CME and Thompson Reuters (TR) selected to operate the LBMA Silver Price. This left only five weeks for CME/TR to implement the solution within a very tight deadline. On 15 August, 2014, the LBMA invited the press to its offices for the official launch of the LBMA Silver Price. The press were given the opportunity to discuss how the auction process worked and to actually see it live. At 12.00pm, everyone became fixated to the TV screen, which showed the first-ever electronic auction for the first of the four precious metals. It all became clear what the auction process involved.

"Participants enter bids and offers, and where equilibrium is found between the bids and offers,

within a specified tolerance, the price is said to have been found."

For the press and others seeing this on the screens for the first time it all made sense. More importantly, on this date, market disruption was avoided. London was able to retain its position within the precious metals markets, for continuing to provide a reference point for the global silver markets.

Following suit, the PGMs moved onto an electronic platform on 1 December 2014, and gold moved to an electronic platform more recently on 20 March 2015, but unlike for silver, these moves were not constrained by a fixed deadline, so the transition was less frantic, but not without their own challenges.

All three systems allow any market participant to join the auction platform, subject to their satisfying the participant's criteria set by the administrators and also the credit requirements. All three systems can be viewed by anyone anywhere in the world, with the auction platform available for view from various service providers. The independent administrators have monitoring and surveillance capabilities, reviewing the activities in the auction platform on a routine basis, all helping to increase transparency and raising the bar.

Regulation

On 1 April 2015, the LBMA Silver Price and the LBMA Gold Price both became regulated benchmarks; therefore, the administrators responsible for these benchmarks will need to be regulated and comply with the FCA rules and regulations on benchmarks. This does not however mean that the participants in these auctions will need to be regulated. The participants to these benchmarks are not considered to be submitters and therefore are not directly subject to the rules and regulations of the FCA as far as benchmark regulations go. However, they have to comply with the requirements that the administrators have put in place.

Nonetheless, benchmark regulation has provided many challenges, a lot of which have been addressed, but some still remain an issue. To date, the FCA has said that any LBMA price provided in additional currencies will be deemed to be a separate benchmark and will therefore be a regulated benchmark. This would mean that the administrators would have to take responsibility for oversight over the foreign exchange rate being used. The administrators continue to work with the FCA to see if a suitable solution can be found.

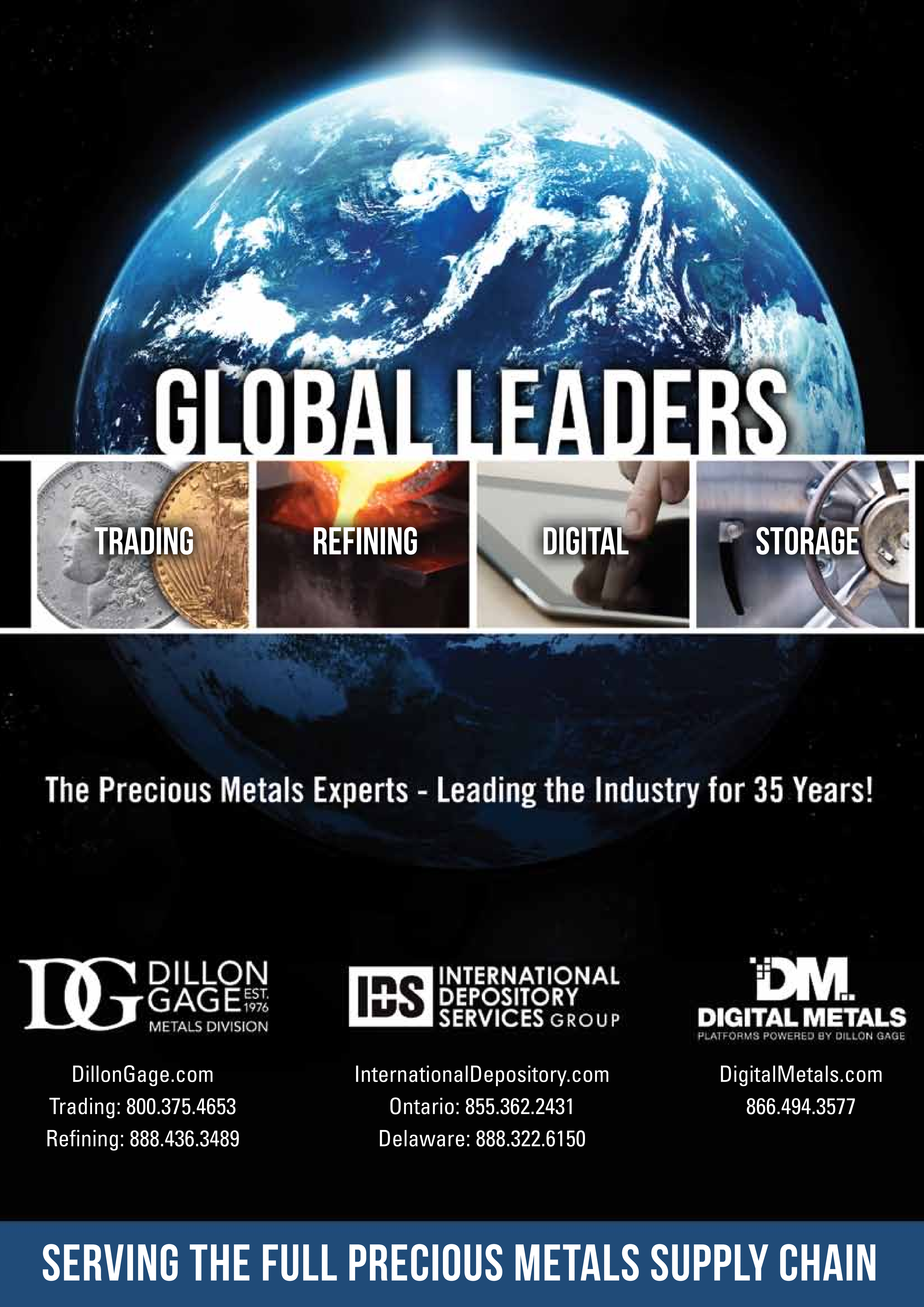
However, the regulations don't stop just at the UK level. The European Union is currently consulting on a draft regulation on benchmarks and, at the moment, it appears that the EU rules will capture all benchmarks which would include PGMs. The level of detail and what that means for how the existing regulations in the UK will change remains unclear. The LBMA will continue monitoring the developments and continue to report and update our members.

What's Next?

The role of the LBMA certainly expanded over the last year. In addition to the most important work of the LBMA on the Good Delivery List, and regularly holding industry forums, the Association today has helped to make the London bullion market less fragmented and to make it easier for the outsider to understand who does what. Nevertheless, much still needs to be done, but certainly enough momentum has been achieved. We at the LBMA will continue to work with the market, regulators and governmental bodies around the world to make sure London continues to lead within the precious metals industry and continues to provide for a truly global marketplace.

Sakhila Mirza, LBMA General Counsel
In her role as General Counsel of the London Bullion Market Association, Sakhila is responsible for all the legal and regulatory aspects of the work of the Association. She is the primary contact for regulators and governmental bodies, and travels extensively, presenting on developments in the bullion market. She has taken the lead in responding to government consultations on various financial and industry regulations, which has included responding to the Bank of England, Financial Conduct Authority and HM Treasury's joint consultation on Fair Effective Markets Review. In addition, she has taken on responsibility for the Association's work on supply chain due diligence, especially with regard to Responsible Gold Guidance and represents the Association at industry and multi-stakeholder regulatory forums. More recently, she has been proactively involved in the transition of the London precious metal prices onto electronic platforms, leading all the legal and regulatory discussions.

She brings with her a wealth of experience having previously worked in the energy and commodities industry where she dealt with compliance, legal and regulatory matters. She read law at the London School of Economics and went on to qualify as a solicitor.


GLOBAL LEADERS
TRADING
REFINING
DIGITAL
STORAGE
The Precious Metals Experts - Leading the Industry for 35 Years!
DG DILLON GAGE EST. 1976
METALS DIVISION
DillonGage.com
Trading: 800.375.4653
Refining: 888.436.3489
IDS INTERNATIONAL DEPOSITORY SERVICES GROUP
InternationalDepository.com
Ontario: 855.362.2431
Delaware: 888.322.6150
DM DIGITAL METALS
PLATFORMS POWERED BY DILLON GAGE
DigitalMetals.com
866.494.3577
SERVING THE FULL PRECIOUS METALS SUPPLY CHAIN

The Sovereign – Setting the Gold Standard

By Victoria Newman, PR Communications Manager, The Royal Mint

Royal Mint Sovereign, obverse and reverse

Victoria Newman reviews the history of the Sovereign, the flagship gold coin of The Royal Mint, and one of the world's most famous gold coins with a rich and varied history that dates back for more than 500 years.

Dr Kevin Clancy, Director of the Royal Mint Museum, stated: "The gold Sovereign was first introduced in 1489 when Henry VII instructed the Mint to produce 'a new money of gold', which would be the largest coin England had ever seen, both in size and value, making in the process a strong statement about his reign. This coin was named a Sovereign and carried an enthroned portrait of the king in coronation robes on its obverse, whilst the reverse depicted the Royal Arms, crowned and superimposed on a magnificent double rose to symbolise the union of York and Lancaster. Large and handsome, the coin was clearly intended to augment the dignity of the king and to propagate a political message of stability and prestige, rather than to fulfil any pressing practical role in circulation. The Sovereign was struck in turn by each of the Tudor monarchs, the observe continuing to feature the reigning king or queen, before its issue came to an end under the rule of James I."

1489 Sovereign depicting Henry VII

The French Revolutionary Wars (1792-1802) and the Napoleonic Wars (1803-1815) led to financial instability and economic difficulties in Britain. In an attempt to restabilise the county's currency, the British Government took the decision to adopt the gold standard.

As a result of this Great Coinage of 1816, the value of Britain's currency became tied to the value of gold and a new circulating gold coin with a value of 20 shillings was introduced – the Sovereign.

Almost half the weight and diameter of the original Sovereign, the new gold coin of 1817 more than matched its predecessor in the beauty of its design. The Italian engraver Benedetto Pistrucci was given the task of designing the reverse image for this new 19th-century Sovereign and created his own classical depiction of St George and the dragon to take pride of place on the coin. Whilst this now iconic design continues to be struck on Sovereigns today, its initial outing actually lasted for only eight years before it was replaced by more conventional heraldic designs in 1825.

1817 Sovereign depicting St George and the dragon

Following a series of shields and Royal Arms designs, Pistrucci's St George and the dragon was selected to be struck on the Sovereign once

What are Proof coins?

They are the highest quality coin produced by The Royal Mint and are ideal for collectors wishing to own coins with the highest levels of craftsmanship and design detail.

The dies used to strike Proof coins are all hand-finished to ensure that all imperfections are removed before they are used to strike a coin. Proof blanks are of a higher quality than Brilliant Uncirculated and Bullion blanks, and each Proof blank is placed into a coin press by hand. Proof coins will be struck up to six times, at a lower speed and with less pressure than other finishes to ensure a smoother, sharper finish and to preserve the finer details of the design.

The dies are cleaned with air between the production of each coin to ensure that no marks or imperfections are caused during striking, and each Proof coin is removed from the press by hand and checked for imperfections after being struck. As a result of the extra care and attention, no more than 50 Proof coins can be struck per hour, whereas Bullion coins are produced at a rate of around 3,000 coins per hour. The Proof dies are regularly reworked and repolished to maintain a blemish-free finish when striking, and each die may only strike a few hundred coins before it has to be repolished.

It is not the quality of the finish alone that makes Proof coins so appealing to collectors and gift buyers. Often struck with low mintages, Proof coins are also rarer than other coins.

more in 1871 alongside the young head of Queen Victoria, until 1887. That year, to coincide with the Queen's Golden Jubilee, new designs were chosen to appear on circulating coins, but only St George was sanctioned by the Chancellor of the Exchequer to grace the Sovereign.

This principal gold coin of the United Kingdom went on to become recognised as currency across the globe and, at the turn of the century, more than 100 million gold Sovereigns were estimated to be in general circulation in the United Kingdom alone.

However, at the outbreak of the First World War in 1914, Britain needed tangible assets to help finance the war effort and the Sovereign became a luxury that it could no longer afford, leading to appeals to the patriotism of British citizens to give up their Sovereigns for their country rather than hoarding them in their homes.

A First World War poster from 1914

To supplement the coinage, the Treasury began to issue paper bank notes for these amounts, which came to be known as 'Bradburys', because they carried the signature of the then Secretary to the Treasury John Bradbury.

The first bank notes were issued on 7 August 1914, only three days after war was declared, in denominations of ten shillings and one pound, the equivalent in note form of the Half-Sovereign and Sovereign respectively, and continued to be produced until 1928, when the Bank of England took over responsibility for issuing the one pound and ten shilling notes.

The Royal Mint continued to strike Sovereigns on a decreasing scale until the summer of 1917, but these iconic gold coins are said to have largely disappeared from circulation in London by June 1915.

Despite the Sovereign's disappearance from circulation, the personal desire of many individuals to own a gold coin did not waiver and, in 1957, The Royal Mint recommenced striking the coin to a bullion standard to meet growing demand.

In a change of fortunes, the Sovereign has progressed from acting almost entirely as a circulating coin to one that continues to offer great appeal to gold bullion coin purchasers because of its reputation for integrity and assay accuracy – accuracy of fineness and also accuracy of weight and diameter.

"The Sovereign continues to bear the legendary St George and the dragon design created by Italian engraver Benedetto Pistrucci in 1817 on its reverse."

It is also produced as a Proof quality collectable coin, whose annual 'release' is much anticipated by numismatic enthusiasts the world over, and it has come to play a key role as a golden gift for special occasions and anniversaries.

The Sovereign continues to bear the legendary St George and the dragon design created by Italian engraver Benedetto Pistrucci in 1817 on its reverse. When the minting of Sovereigns resumed in 1957, there was no thought to replace the classic design, which has appeared on every bullion Sovereign of the current reign with the exception of just four special occasions. These rare changes took place in 1989 for the special commemorative coins celebrating the 500th anniversary of the original Tudor Sovereign, in 2002 for the Queen's Golden Jubilee year, again in 2005, and in 2012 for the Queen's Diamond Jubilee.

Whilst the 22 carat gold Sovereign has seen some major changes occur in its country of origin in the century since the First World War, it has managed to remain fundamentally unaltered in its design and composition, and remains the most accurately specified coin in the bullion world, with its weight of 7.98805 grammes and purity guaranteed to five decimal places by the Coin Act of 1971.

Today, the quality of the Sovereign is tested using the most modern assay techniques and independently verified each year in one of the oldest known quality assurance processes, the Trial of the Pyx.

This is an independent judicial ceremony that dates back to the 13th century and takes place annually at the Hall of the Worshipful Company of Goldsmiths in London. Throughout the year, coins are randomly selected from batches of certain denominations struck during that year, sealed in bags containing 50 coins each and locked away in the Pyx chests for testing at the Trial (see overleaf for more details).

What are Brilliant Uncirculated coins?

Brilliant Uncirculated coins are a higher standard than circulating and Bullion coins, without the extra finishing and detail provided on Proof coins, and offer a good level of design detail but with lower definition than Proof coins. They are intended as an entry-level collectable coin or as the perfect affordable gift for someone looking to mark a special year.

Like Proof coins, the dies used to strike Brilliant Uncirculated coins are polished and finished by hand. Unlike Proof blanks, Brilliant Uncirculated blanks are machine-fed and only struck twice, so they are produced at a much quicker rate than Proof coins –around 100 coins per hour.

What are Bullion coins?

Bullion coins have a similar standard of finish to circulating coins. They are generally bought for their intrinsic qualities. The production of Bullion coins places an emphasis on efficiency of production and reducing cost.

The finish on Bullion coins is not specifically intended to highlight the detail and artistry of the coin's design, or the craftsmanship and skill of its minting. However, Royal Mint Bullion coins are renowned for their distinctive and beautifully rendered designs, and the beauty of the Sovereign in particular continues to capture the eye of the beholder in a Bullion finish

Victoria Newman, PR and Communications Manager, Royal Mint
Victoria Newman has worked as a PR and Communications Manager for The Royal Mint since December 2013. She is responsible for marketing the company's commemorative coins, medals and bullion products, in addition to running the press office function. Victoria has over ten years public relations experience working for clients in the public sector, energy, utilities and IT industries.

Trial of the Pyx

Sovereigns are inspected at the Trial of the Pyx

The Trial was first recorded publicly in 1282 and is today presided over by the Queen's Remembrancer or their deputy, who are amongst the highest legal representatives in the country, assisted by an independent jury of Liverymen of the Goldsmiths' Company.

During the ceremony, jury members are presented with Pyx boxes (Pyx being the Roman word for chest). The coins are selected from a random selection provided by The Royal Mint and are placed in copper bowls. The remainder are placed in wooden bowls and are then weighed for accuracy. The Trial is then adjourned until May to allow time for trial coins to be tested by Goldsmiths Assay Laboratory and the National Measurement Office.

They are tested against Trial Plates held by the UK National Measurement Office, and an independent jury, which includes senior financiers from the financial world accompanied by assayers from the Worshipful Company of Goldsmiths, confirms that the coins are within the statutory limits for metallic composition, weight and size.

> *"Modern legislation does not mention penalties for an adverse verdict by the Pyx jury, yet there have been stiff punishments for failure in the past."*

Whilst modern methods such as XRF (X-Ray Fluorescence) are often used in assaying, it is still only the centuries old methods such as cupellation (the fire assaying of gold) that are accurate enough in the testing of metals and therefore remain credible for checking the accuracy of the coins of the realm for the Trial of the Pyx verdict.

Modern legislation does not mention penalties for an adverse verdict by the Pyx jury, yet there have been stiff punishments for failure in the past. The Master of the Mint (today a role held by the Chancellor of the Exchequer) went to prison for six weeks in 1318 and even Sir Isaac Newton was at loggerheads with the jury during his time as Master of the Mint when the integrity of his coin samples was questioned.

Whilst the Trial is steeped in ancient traditions and attended by officers with some of the oldest job titles in the land, the Trial of the Pyx is as relevant today as it has always been. It continues to play an extremely important role in endorsing The Royal Mint's reputation for reliability and integrity, and guaranteeing the enduring excellence of the Sovereign.

PRECISE REFINING

TURKEY • USA • SPAIN • GERMANY • DUBAI

IGR is the largest and the fastest growing precious metals refinery in Turkey.

IGR provides quality and reliability with rapid settlements, accurate assays and fast payment to the world's leading mining companies.

IGR has a ISO 14001 certification for its commitment to national environmental protection and its laboratory is accredited according to ISO 17025.

ISTANBUL GOLD REFINERY IGR MELTER & ASSAYER

ISTANBUL GOLD REFINERY

igr.com.tr igrglobal.com

LBMA GOOD DELIVERY REFINER

DMCC DUBAI MULTI COMMODITIES CENTRE

IPMI INTERNATIONAL PRECIOUS METALS INSTITUTE

CME GROUP APPROVED

BORSA İSTANBUL

Responsible Players in a Responsible Industry

By Dr Wilfried H. Hörner, Co–Chief Executive Officer, Argor-Heraeus SA

Production process of cast bars

The industry's commitment

In recent years, the precious metals sector has seen a considerable increase in standards and regulations aimed at creating and reinforcing conditions to ensure greater social responsibility by companies throughout the chain. National and supranational organisations have devoted major resources to guarantee the traceability of metals, the respect of human rights and the environment, and the prevention of practices such as money laundering and other violations.

The LBMA has developed the Responsible Gold Guidance (RGG), which is based on the Due Diligence Guidance for Responsible Supply Chain of Minerals published by the OECD in 2011. This is mandatory for Good Delivery refiners that want to be accredited by the London Bullion Market. Other key bodies operating in the precious metals chain, such as the World Gold Council and the Responsible Jewellery Council, are taking similar steps.

This has created a growing number of rules and requirements for large, well-organised companies as well as for small-scale operators. The industry initiatives referred to above support both large and small players with tools and instruments to help them achieve compliance (see the boxes below for details).

Thanks to this collective effort, also sustained by a commitment to harmonise standards, today's precious metals industry is even more responsible than it was just a few years ago.

Measuring gold thickness during the production process

This important development would have been impossible without the contribution of industry operators. For several years, Argor-Heraeus has been co-operating with the organisations that set standards in the precious metals field. On a regular basis, our directors and compliance team take part in international meetings, conferences, visits and workshops. The contribution of our expertise helps improve the definition of guidelines, requisites and inspection protocols that form the building blocks of a precious metals industry that is more sustainable along the entire chain. Such effort must refer to all operators, including especially those that present greater potential risk due to their size or the geopolitical context in which they operate. Our commitment to working in a more responsible industry involves a significant allocation of resources: we have calculated that Argor-Heraeus invests almost 600 man days per year just checking the reliability of our partners. Although this demands a major effort, we are convinced that as a major player with a long tradition in the industry, it is our duty to offer know-how and resources that assist the industry to move towards a model that merges cost-effectiveness with responsibility.

The Company as a Citizen

Our commitment to responsibility does not end with our contribution to the industry or chain. For many years, Argor-Heraeus has firmly believed that a company must be aware of its role as a 'citizen' in the socio-economic context in which it operates. We strongly believe that being a

'good citizen' is a fundamental condition for long-term success. Our management devotes considerable resources to imposing strict internal procedures that monitor and reduce the overall impact of our activities, often going beyond legal and regulatory requirements. We also make similar efforts to ensure that all of our employees develop an approach based on sustainability and ethical behaviour. This is guaranteed by a Code of Conduct, internal compliance policies, numerous certifications, as well as many hours of employee training courses.

The roof of Argor-Heraeus's headquarters in Mendrisio, one of the region's largest photovoltaic plants

Well aware of our Company's role in society, many of our initiatives are not linked exclusively to our core business. For example, we have installed one of the region's largest photovoltaic plants on the roof of our Swiss headquarters, as well as creating a mobility programme (which received the '2013 Mobility' award from the City of Mendrisio) to encourage our employees to use public transportation or to car-share, and last but not least, we co-operate with the University of Applied Sciences and Arts of Southern Switzerland (SUPSI) by awarding a prize to the student with the year's best diploma.

For the past five years, we have published our Sustainability Report (on www.argor.com), providing a tool for internal control and a stimulus for continuous improvement of our environmental, social and economic commitment.

Dr Wilfried H. Hörner, Co–Chief Executive Officer, Argor-Heraeus SA

Dr Wilfried H. Hörner completed his doctoral thesis in Chemistry in 1979 at the Julius Echter University of Würzburg in Chemistry, specialising in the sector of environmental protection (waste gas desulfurisation). Subsequently he was appointed as Head of Research and Development Precious Metal Refining and Products of W. C. Heraeus GmbH, Germany, until 1983. He then became Vice President & Technical Director to Heraeus Ltd. Hong Kong until 1987, before being appointed as Sales Manager World (Chemicals & Refining) of W. C. Heraeus GmbH, Germany. In 1988 he moved to Argor-Heraeus SA, Switzerland as Technical Director a position held until 1999, before becoming Associate & Director of Argor-Heraeus SA with responsibility for marketing and technical management. Since 2013 he has held the position of co–CEO of Argor-Heraeus SA.

He has actively cooperated for many years in a number of internal and external responsible sourcing initiatives and forums and is a member of the Standard Committee and Member of the Board of Directors of the Responsible Jewellery Council.

LBMA Best Practice Toolkit – Co-operating for better traceability

The LBMA has recently issued the 'LBMA Best Practice Toolkit', designed to make it easier for refiners to manage due diligence procedures for their value chain, in conformity with the standards required by the LBMA Responsible Gold Guidance (RGG), for gold coming from mines as well as from scrap and other sources.

The toolkit, comprising a set of questionnaires, checklists and evaluation sheets, was conceived to help not only refiners, but other industry players as well, with the clear goal of creating greater security and consistency in due diligence procedures. For example, a mine or bank that wants to process its gold at an LBMA Good Delivery refiner can use the questionnaire to prepare all of the documentation required for the internal evaluation of the customer and/or the transaction. Likewise, other operators in the value chain that want to carry out a due diligence procedure – regardless of their size and experience – can also use the toolkit. The toolkit can also help auditors interpret the LBMA RGG and evaluate the refiner's proper application of diligence obligations with respect to these standards.

The toolkit, created in collaboration with the LBMA by Argor-Heraeus, PAMP and Metalor, Switzerland's three largest refiners, is a good example of how co-operation among specialists can serve as a stimulus for developing a more responsible precious metals industry. Starting in August 2013, these three companies worked together for more than a year, providing their extensive know-how in due diligence to develop a unique toolkit that helps provide guidance and assistance to the entire industry.

The toolkit is available on the LMBA website: http://www.lbma.org.uk/responsible-gold

A tangible effort to help artisanal and small-scale mines enter international markets

Artisanal and small-scale mines are one of the most delicate links in the precious metals value chain, because they are small mines that sometimes operate without authorisation and/or without adequate machinery and technology. They are found primarily in developing nations, where a great number of people depend on them directly or indirectly. The most critical aspect of their operation is the protection of workers and the environment.

Moreover, these mines are often excluded from the official precious metals market, which for years has been imposing increasingly strict standards, rules and procedures. Mines that are unable to comply with these standards are barred from the official market, with all of the potential consequences that may result.

Therefore, in recent years, a series of initiatives have been launched to help artisanal and small-scale mines comply with standards for the traceability of materials and for work/environmental conditions, so that they may satisfy requirements for selling mined metals on official markets. These initiatives include the Swiss Better Gold Initiative, the Max Havelaar 'Fair Trade Gold' initiative and the 'Fairmined Standard v. 2.0' initiative of the Association for Responsible Mining (recently recognised as a valid standard for the RJC Chain-of-Custody certification).

Argor-Heraeus actively promotes these initiatives: for example, it is one of the main supporters of the Swiss Better Gold Initiative, a founding member of the Swiss Better Gold Association, and participates in the launch of analogous projects both in Switzerland and internationally. Recently, such initiatives have started to deliver the first results. For instance, the Peruvian mine Sotrami is now producing certified gold and is able to sell it internationally with the support of these initiatives, with another mine from the same country, Macdesa, about to become certified.

Review of the LBMA Assaying and Refining Conference

By Stewart Murray, LBMA Good Delivery Consultant

The LBMA Assaying and Refining Conference was held at the Millennium Hotel in Grosvenor Square in London's Mayfair from 8 to 11 March 2015. This, the sixth event in the series, which has been held in London every two years since 2005, is reviewed by the LBMA's Good Delivery Consultant, Stewart Murray, who also chairs the LBMA Referees group, which is primarily responsible for the development of the Conference programme.

1. Background and History

Although referred to as the Sixth Assaying and Refining Conference, the previous events in the series were known as 'Seminars'. During its review of the 2013 event, the Organising Committee felt that the term 'Conference' was justified by the greatly increased scope of the programme, the diverse and increasing participation, and the optional events on the final day.

The origin of the conference was the LBMA's Assaying Seminar, which took place in Armourers Hall in June 2005, in the wake of the introduction of Proactive Monitoring the previous year. Apart from a number of invited speakers, participation at that first event was limited to representatives of Good Delivery refiners and LBMA members. The aim was to facilitate the maintenance and, where appropriate, the improvement in the accuracy and precision of assaying and analytical techniques used in the precious metals industry. But perhaps of equal importance was the opportunity that the seminar provided for technical experts from around the world to meet and exchange ideas.

From 2007 onwards, the term 'Refining' was added to the event name, reflecting the fact that part of the programme was devoted to issues such as bar production and quality.

It is notable that two of the LBMA's most important developments in the technical area in recent years (the production of gold and silver reference materials and the Proficiency Testing scheme for gold assayers) both stemmed from discussions at the seminars.

2. Organising Committee

The LBMA is very pleased to acknowledge the work of the Organising Committee, which comprises representatives of the referees group:
Argor Heraeus – Alessandro Ruffoni
Metalor – Jonathan Jodry
PAMP – Umberto Magro
Rand Refinery – Madeleine Theron
Tanaka – Hitoshi Kosai

In addition, Mike Hinds of the Royal Canadian Mint, who also chairs the Reference Materials Steering Committee.

3. Attendance

As was the case for the last two events, the number of registered delegates in 2015, at 184, reached a new record. This is more than double the attendance of the early events in the series. Although the delegate list continues to be dominated by representatives of Good Delivery refiners, the LBMA has opened up participation in recent years and it was notable that a much wider range of organisations was represented at this year's event. The number was swelled this year by refiners that are seeking accreditation and by representatives of equipment manufacturers, a number of which also had a booth in the exhibitor area. In addition, for the first time, a significant number of central banks and related institutions were represented, no doubt reflecting the interest of the official sector in ensuring the quality of its gold reserves, in terms of both the precious metal content and the physical quality of the bars being held.

4. Programme and Presentations

The first day commenced, as in all previous events, with a welcome from the Chief Executive and an update on LBMA technical activities. The rest of the day was devoted to assaying and analytical techniques. On the second day, the morning sessions focused on bar integrity and in the afternoon, the final two sessions of the conference addressed practical issues and dealing with uncertainty. Each day ended with a short panel session, which allowed questions from the floor to be discussed.

All the presentations can be downloaded as PDFs from the LBMA website, so the descriptions in the table to the right are limited to a series of 'tweets' describing their contributions.

5. Optional Events

On the morning of Wednesday, 11 March, four optional extras were on offer. These included three visits (to the laboratories of the Inspectorate International in Witham, the London Assay Office and the Royal Institution – the historical home of science in London) and a workshop on X-ray fluorescence spectroscopy led by Mike Hinds. The LBMA is most grateful to all of them for extending their hospitality to our delegates and, in the case of Mike Hinds, for the huge amount of preparation that went into his workshop. It was most gratifying that the workshop and the visits to the Assay Office and Witham were completely sold out.

6. Networking

From the first event back in 2005, it has always been clear that participants find the networking opportunities at the LBMA seminars to be particularly valuable. There is simply no other event that offers the chance for precious metals assayers and analysts to meet their peers from other companies and countries. From the welcome reception on the Sunday evening until the informal lunches following the optional events on the Wednesday, there was a constant exchange of business cards and ideas. With hindsight, given the numbers that were staying over until the Wednesday, it might have been a good idea to organise some kind of informal get-together in a local hostelry for those who wanted even more.

7. Sponsors and Exhibitors

The LBMA would also like to offer a word of thanks to the sponsors and exhibitors. The Monday and Tuesday lunches were sponsored by IKOI and the conference dinner on the Monday was sponsored jointly by the LBMA's five referees (listed above).

The exhibitors' stands from the following companies were located in the area used for the coffee breaks.

- Agilent
- Alex Stewart International
- Allocated Bullion Solutions Pte Ltd

- Ametek – Spectro Analytical Instruments UK Ltd
- Fischer Instrumentation

8. Feedback

As usual after an LBMA event, delegates were invited to provide feedback, via an online poll, on the programme, the speakers, the venue and the networking opportunities. A slightly disappointing number of 38 replies were received and the various detailed comments and suggestions will be reviewed by the Conference Committee (anonymously of course).

The feedback can be summarised as follows:

- Just over half the respondents thought the conference to be ‘excellent’ overall: the remainder considered it to have been ‘good’.
- In terms of value for money, opinions were more divided. A small minority (16%) thought that this was only ‘adequate’. Just over half of the respondents thought it was ‘good’ and a quarter thought it ‘excellent’. But at least no one ticked ‘poor’!
- Looking ahead to the next conference, there was a balance between those who felt that it was time to choose a different location and those who felt that London still has much to offer.

9. Next Event

The next Assaying and Refining Conference will take place in March 2017. In her closing remarks, the LBMA Chief Executive, Ruth Crowell, noted that UK locations other than London could be considered as long as they had good flight connections and facilities.

The Conference Committee will shortly be meeting to discuss many aspects of the next conference. Suggestions from *Alchemist* readers are always welcome and should be addressed to ruth.crowell@LBMA.org.uk.

Presentation	Description
Session 1: Introduction	
The LBMA Good Delivery System – Recent and Future Developments by Stewart Murray, LBMA Good Delivery Consultant	Recent history (and geography) of Good Delivery List accreditations and refined production. Development of the Rules on applications and bar quality.
LBMA Reference Materials – AuRM3 and Beyond by Mike Hinds, Royal Canadian Mint	AuRM3 timeline: specifications, manufacture, homogeneity checks, multi-lab analysis and certification. Request for feedback on the next RM.
LBMA Proficiency Testing Scheme by Jonathan Jodry, Metalor Technologies SA	PT fundamentals and value. Sample manufacture for PTS 2015. Review of results for Good Delivery refiners and others. Comparison with earlier schemes.
Session 2: Assaying	
Fire Assay Round Robin Organised by the Japan Mint by Satomi Tabuchi, Japan Mint	Importance of fire assay for the 10 Japanese Good Delivery gold refiners. Parameters and results for the 2014 Round Robin exercise using LBMA samples.
Some Observations on the Use of Fire Assay for Gold by Dippal Manchanda, Birmingham Assay Office	Understanding fire assay technically. Optimum silver and copper additions. Balance accuracy. Modified formula if samples contain pgms.
Use of XRF for Hallmarking at the London Assay Office by Chris Walne, London Assay Office	Items tested. Effect of parameters on precision (beam size, counting time, positioning). Different counters. Standards and uncertainties.
Session 3: Analytical Methods	
Analysis of Gold 995-999.9‰ Using MP-AES by Jean-Pascal Bourgeois, University of Applied Sciences, Fribourg	Use of microwave plasma atomic emission spectroscopy for analysis of 995+ gold. Detection limits and improved linearity versus ICP OES.
Analysis of Gold 995-999.9‰ Using Spark-OES by Madeleine Theron, Rand Refinery	Benefits (reliability, detection limits, precision, speed) and limitations of spark OES analysis in comparison with other methods.
Analysis of Gold 995-999.9‰ Containing Large Amounts of Copper by Daniela Manara, PAMP	Influence of varying amounts of copper in Good Delivery gold alloys on the accuracy of determination of fineness by fire assay.
Session 4: Reference Materials and Other Analytical Methods	
Comparative Study of Silver Bullion Analysis by Robert Lawrence, Johnson Matthey Canada	Benefits and limitations of fire assay versus automatic titration for the analysis of silver raw materials from mine and scrap sources.
Manufacture of LBMA Reference Materials by Krastsvetmet by Elizbar Aliev and Irina Khobyakova, Krastsvetmet	Detailed procedures followed during the manufacture, homogeneity testing, analysis and certification of the AuRM3 reference material.
LPPM Reference Materials for Platinum and Palladium by Hiroshi Sawai, Tanaka Kikinzoku	Update on the production of Pt and Pd reference materials for the LPPM (target concentrations, manufacture, homogeneity check and analysis).
Session 5: Bar Integrity Chairman Stewart Murray	
Analyses of the Chemical and Structural Integrity of Gold Bullion Bars by Eddy Current Probes, by Quentin Bochud and Daniel Sutter, Metalor and Helmut-Fischer	Possible applications of phase-sensitive eddy current equipment for investigating and highlighting problems in gold bullion products.
Examination of Gold & Silver Bars and Coins by Resonant Ultrasound Spectroscopy by George Rhodes,	Description of resonant ultrasound spectroscopy and its possible applications to the testing of suspect gold and silver bars and coins.
Different Approaches to the Use of Ultrasonics in London Vaults by Neil Harby, LBMA Good Delivery Officer	Principles and practical considerations in the use of ultrasonic testing equipment for investigating suspect bars in the London vaults.
How the Battle against Counterfeiting in the Coin Industry has driven Innovation by David Janczewski, Royal Mint	Historic battles with coin counterfeiters. Current overt and covert security features. Innovative new security in the 2017 pound coins.
Study of Elemental Fingerprinting of Gold Doré using Glow Discharge – Mass Spectrometry by Mike Hinds, Royal Canadian Mint	Requirements for the possible use of marker elements to fingerprint gold bullion and their detection using glow discharge mass spectrometry.
The Visual Guide to What Is and Isn’t Acceptable in London by Stewart Murray, LBMA Good Delivery Consultant	Evolution of the Good Delivery rules on bar quality. Contents of the 2008 pdf Guide. Purpose and publication of the forthcoming website-based Guide.
Session 6: Practical Issues	
Precious Metal Logistics and the Value Chain by Tony Evanson, Brink’s	Challenges in moving precious metals from mine, by land or air - via Customs - to refinery or fabricating plant and the ultimate customer.
Acidless Separation Technology for Refining Gold by Federico Padrono Martini, IKOI	Principles of the technique and practical procedures. Positioning versus other technologies. Suitability for various raw materials.
Assaying and Analysis Choices in Practice by Dirk Hofmans, Umicore	Analysis and comparison of information provided by Good Delivery labs on the use of direct versus indirect methods for gold proficiency testing.
Session 7: Dealing with Uncertainty	
The Smallest Things Can Often Create the Biggest Problems – Why Sampling Matters by Kevin Tucker, Inspectorate International	The challenge and financial importance of ideal sampling of precious metals containing materials ranging from ores to end of life materials.
Fire Assay Splitting Limits by Jon Forrest, Royal Canadian Mint	Reasons for and implications of the trend towards lower splitting limits. Use of umpires. Calculation of appropriate splitting limits.
Uncertainty and Fineness Marking of Bars by Alessandro Ruffoni, Argor-Heraeus	Requirements for the production, assaying and quality control systems to ensure the

LBMA Proficiency Testing Scheme

By Jonathan J. Jodry, Head of Laboratories, Metalor Technologies SA

The results of the fourth edition of the LBMA gold (>995‰) proficiency testing have been released. This paper, presented at the LBMA 2015 Assaying and Refining Conference in London on 9 March, details how samples are prepared, what results were obtained and what can be learned from the exercise.

I. Introduction

In the precious metal industry, laboratory staff are extremely important people. If they don't do their job properly, there is a huge risk for the company, which can take the form of lost metal, compliance problems or reputation issues. There are many tools allowing laboratories – and management – to control the quality of analyses performed, and one of those is proficiency testing (also called round robin). In 2012, the LBMA launched its own annual Proficiency Testing (PT) scheme, and the results of the fourth scheme were released just a couple of weeks ago.

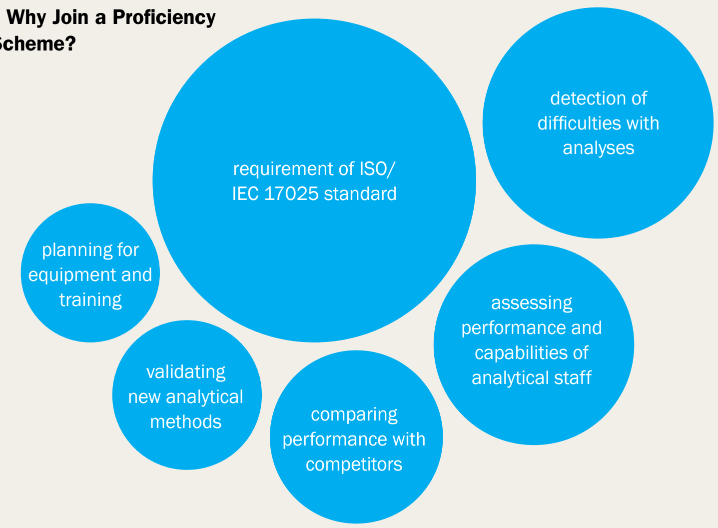
Why join a Proficiency Testing scheme?

There are many reasons to join a proficiency testing scheme (see chart 1). For laboratories, the most frequently cited reason is that such participation is a requirement of ISO 17025, as this accreditation requires all laboratories to perform inter-laboratory testing on their accredited methods.

There are, however, other attractive reasons.

- Issues on analyses can potentially be detected. While most laboratories believe they provide the best analyses in the market, it is not always the case. Pinpointing specific problems can be complex; proficiency testing can provide such information, especially when a scheme is joined for several years in a row.
- Assessment of the performance and capability of the analytical staff can be performed. This is crucial not only for the lab manager, but for the management of the company: both enjoy the assurance that the analytical job is performed properly. A PT organised by a third-party organisation is usually trustful.
- Comparison of a laboratory's performance with a large number of competitors can be done only through participation in such a scheme.
- Validation of new analytical methods is often complex. Over the last four years, we have seen many laboratories starting to rely heavily on spectroscopic methods, while fire assay was the reference method in 2012. It is likely that some spectroscopic methods were validated in-house with the use of the LBMA PT.
- Equipment change and training can be justified. Obtaining budget for buying a new ICP-OES is not always easy nowadays, but PT results can help justify such an investment.

Chart 1: Why Join a Proficiency Testing Scheme?



There are several proficiency testing schemes for precious metals organised outside the LBMA:

- The major one is a scheme organised by ASTM (the American standard organisation), which organises four PTs every year with a carat-gold sample ranging typically from 200 to 950‰.
- The International Association of Assay Offices (IAAO) has a set of proficiency testings on jewellery-grade gold, silver, platinum and palladium, which are unfortunately not open to the public for the time being.
- Other proficiency testing schemes are organised in Spain by FELAB, and by companies and associations focusing on geographically limited areas.

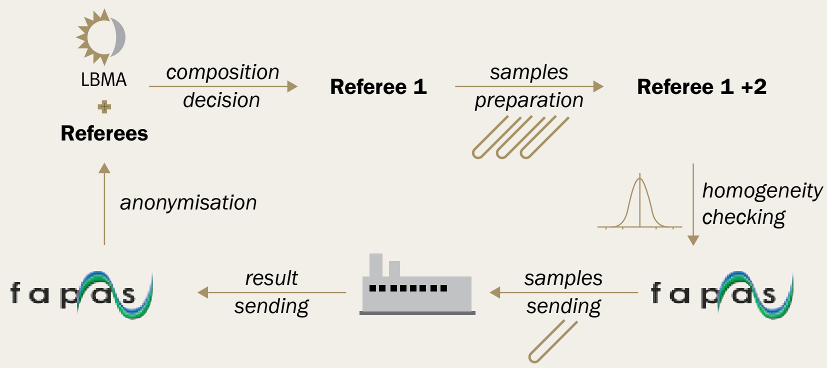
However, only the LBMA is proposing proficiency testing for high-purity gold of 995‰ and higher.

II. Sample Composition and Preparation

The LBMA wants to ensure that a significant variety of compositions is proposed for the proficiency testings, covering purity of between 995 and 999.9‰, and corresponding to 'real-life' materials. This means that binary samples containing only gold and silver as an impurity are not attractive, and nor are materials with exotic elements. The idea is rather to have samples that could correspond to what is obtained at a refinery. Importantly, all samples are specifically prepared for the proficiency testing, which is a requirement to get an appropriate homogeneity.

The procedure starts with the LBMA and the referees deciding on a specific composition (see chart 2). One referee will prepare the samples, analyse them and provide data on homogeneity to the LBMA. In parallel, a second referee will

Chart 2: Preparation of Samples



independently test the homogeneity. This double verification is very important: samples that are not rigorously homogeneous would be of no use for the scheme. Samples are then sent to FAPAS, which in turn sends the samples to the laboratories. Once the samples have been analysed, the results are sent back to FAPAS, which will anonymise them and forward them to the LBMA and the referees.

Again, note that neither the LBMA nor the referees know which result was provided by any given company, so the PT is really a tool to control each laboratory's own ability. While the LBMA cannot monitor each refiner's performance, PT gives information on how the market is doing and indicates, sometimes, that the results are not as precise as we all would like them to be.

Chart 3 shows the composition of the four samples analysed between 2012 and 2015, with the bars representing the amount of impurities (in ppm, part per million). In 2012, we had a 995.4‰ sample, with mostly silver and some copper as impurities. The following year, the sample contained fewer impurities. In 2014, we focused on a slightly unusual 997‰ sample with more copper than silver – something we see more and more in the market. And this year, we had a sample with a very low impurity level, above 999.5‰. Apart from the main elements – silver, platinum, palladium and copper – we have always had a couple of extra elements, and the list is open to change in the future.

The central data obtained from any proficiency testing is the Z-score (should you remember only one piece of information for your result, it should be that number). It is defined from two factors: the target value, which is the average of all valid results given by laboratories; and the acceptable standard deviation, fixed at 0.049‰. This value was calculated from assays performed for the LBMA over 10 years and fixes the precision we want to achieve. Since the target value is an average of averages, rather than a number defined by the referees, the PT scheme is valid only if you have a large number of laboratories participating, typically more than 30.

- Laboratories want to achieve a Z-score of between -2 and 2: 85-95% of laboratories reached that important goal.
- A Z-score of between 2 and 3 (and between -2 and -3) is a little tricky. It means that it is not possible to say whether the laboratory has a bias or not: the result is borderline. Laboratories within those zones should consider the result as a warning and carefully check whether there is a potential problem. Most importantly, they should join the next proficiency testing either to corroborate this bias or to confirm that there was no error.
- Z-scores above 3 and below -3 are seriously concerning and mean that from the statistical point of view, the laboratory is outside the range it should be in. Until last year, we always had one lab outside the range; this year, we had two.

IV. Analytical Method

Historically, the method of choice was fire assay (cupellation). Since 2012, when all but six labs were using fire assay, we have seen more and more results obtained by spectroscopic analyses. The most common method is ICP-OES, but this year, we have seen some results by SPARK-OES and ARC-OES, as well as by atomic absorption spectroscopy (the latter was only used however to determine a single impurity).

"The use of SPARK-OES was both surprising and exciting. SPARK ablation is a fantastic technique, because it is extremely stable."

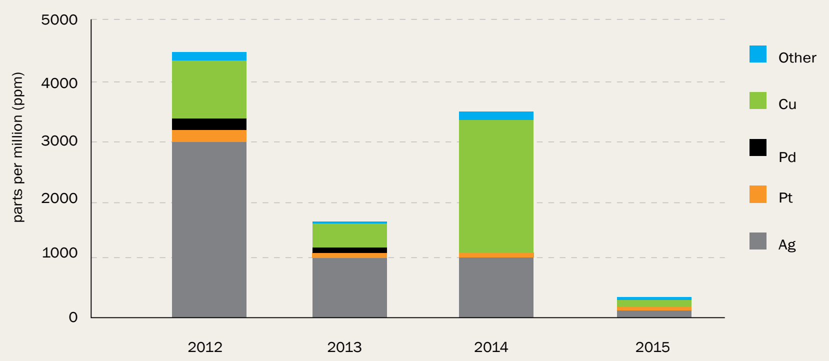
Spectroscopic methods that we have not seen yet are MP-AES, using a plasma generated by a microwave, and ICP-MS, whose usage has been developed by several companies but to the best of our knowledge has never been applied to qualify high-purity gold at PT.

The use of SPARK-OES was both surprising and exciting. SPARK ablation is a fantastic technique, because it is extremely stable. You can calibrate an instrument once and then just use setting-up samples (SUS) to correct the drift over several years. The problem is that, normally, you cannot analyse wires, because the instrument opening is too large. One of the labs came up with this original idea of transforming the wire to a flat surface and got a very precise result.

V. Accuracy and Precision

The main difference between spectroscopic analysis and fire assay is their respective precision, while accuracy is usually similar (see chart 4). The results from 2012-15 are normalised to 1,000 (the target value). All values are very close to 1,000, with no significant difference between ICP-OES and fire assay (the 2012 ICP-OES result is biased by the very small number of labs using that instrument).

Chart 3: Composition of PT Samples 2012-2015

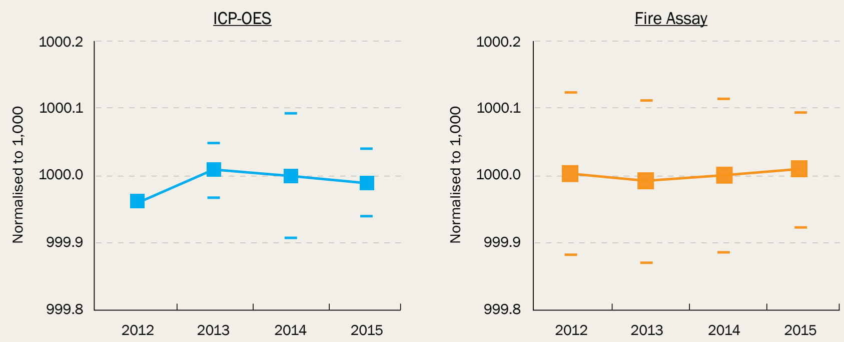


III. Participation and Results

Participation was stable for the first three years, with about 40 labs joining, while this year we have seen a sharp increase, with 49 Good Delivery laboratories as well as 10 non-Good Delivery companies participating. This is the first time the LBMA has opened the scheme to non-Good Delivery companies, which could be supervisors, assay offices or silver Good Delivery companies interested in assessing their gold analytical abilities.

The results have been processed independently – 49 results from the Good Delivery labs and 10 other results – since we wanted to check whether any bias was observable between the two groups.

Chart 4: PT Accuracy and Precision 2012-2015 (results normalised to 1,000)



Spectroscopic analysis is extremely powerful when samples contain a low amount of impurities. In 2014, with 3,000 ppm of impurities, the precisions of ICP-OES and fire assay were more or less identical. However, when we go to material with a higher purity, we see a significant difference between fire assay and spectroscopic analysis, with ICP-OES being much more precise.

Interestingly, we do not observe a significant variation between accredited and non-accredited laboratories using fire assay.

ICP-OES is an extremely powerful method for the determination of each specific impurity. In 2014, we measured a little over 1,000 ppm for silver, with a standard deviation of 39 ppm (4%). For copper, the standard deviation was about 5%. In 2015, the results were also interesting, with every single impurity – silver at about 2,000 ppm, and platinum, palladium and zinc at about 10 ppm – having a standard deviation of about 10%.

VI. 2015 Results

Chart 5 shows all the results from accredited and non-accredited laboratories, as well as the LBMA accepted deviation (as illustrated by the red lines). During an application, 999.5‰ gold has to be provided to the LBMA with an accuracy of 50 ppm, which means that every result above or below this level would have been classified as a failure. Two labs not on the Good Delivery List announced a far too high purity for the sample (above 999.8‰). At the same time, other accredited laboratories delivered results that were extremely far from the expected value. Any laboratory with an abnormal result really needs to take action and to seek advice to fix the issue. It could mean that a systematic bias is taking place at the company, which could potentially lead to a large loss of money.

In terms of method used, spectroscopic analysis, with one exception, was much better than fire assay in terms of accuracy. Specifically for gold above 999.5‰, spectroscopic methods are usually much more robust. The 2015 PT was a high-purity sample, and it thus does not mean a similar effect will be observed next year.

“Any laboratory with an abnormal result really needs to take action and to seek advice to fix the issue.”

A recurrent problem with this is that laboratories tend to overestimate the precision of their method. For each lab, the standard deviation is represented by vertical lines which should cross the target value. This however is not the case for most laboratories. A possible reason could be that the highest and lowest replicas are removed from the list of results, which often does not change the average, but does seriously diminish the uncertainty and gives a false sense of safety.

VII. Conclusion

It was great to have so many participants this year, including 10 non-Good Delivery laboratories. The more participants we have, the more statistics we can produce. In the past, it was not easy to compare fire assay with spectroscopic results, simply because there were not enough ICP-OES analyses.

Slightly concerning, we still have relatively poor results from several ISO 17025 accredited laboratories, as well as from non-Good Delivery laboratories. We hope that the labs concerned will promptly resolve their problems.

In terms of the future of LBMA proficiency testing, we can expect the scheme to continue for a long time, with compositions of between 995 and 999.5‰ being provided.

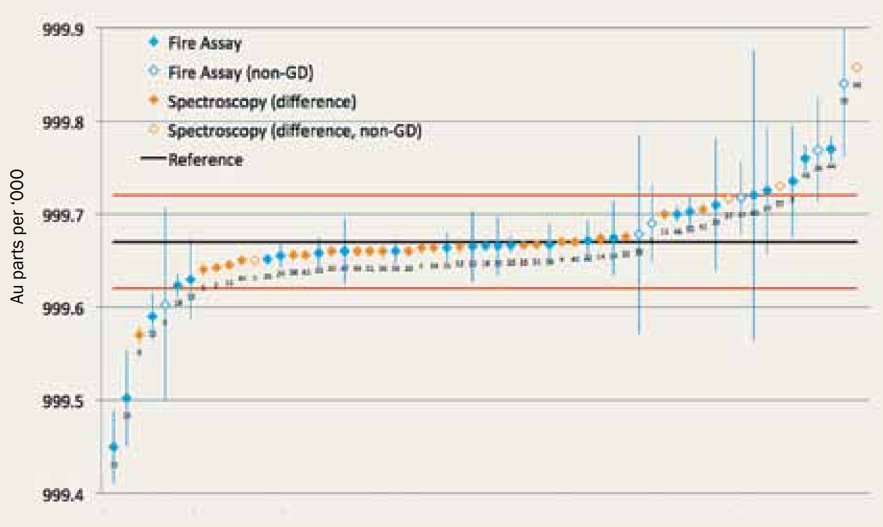
We are hoping to see more and more improvement on the spectroscopic methods side, especially in the range of 995‰ gold, where those methods can sometimes be challenging. We also wish to see an increased participation of non-Good Delivery laboratories. To be fair, for those laboratories, it was the opportunity to join the scheme: they are likely to perform better in the following years, perhaps by selecting who should do the analyses and how many replicas should be performed.

Newer methods are available, including MP-AES and ICP-MS; we have not seen results provided by such instruments during previous PTs, but this could change rapidly.

An obvious extension of the LBMA proficiency testing would be on silver. The LBMA might decide to start such scheme in the future, which would be very beneficial for companies on the silver Good Delivery list.

Jonathan J. Jodry got his PhD at the University of Geneva in 2000 in organic and supramolecular chemistry; he then spent 8 years in Japan, first as a JSPS post-doctoral fellow at the Tokyo Institute of Technology, and subsequently as a senior researcher at Central Glass, a Japanese company that specialises in fluorine chemistry. Returning to Switzerland in 2009, he joined Metalor Technologies as the trace analysis laboratory manager, and later became Head of laboratories. Collaborating with the company's other laboratories in America and Asia, he represents Metalor Technologies as a referee at both the LBMA and the LPPM, is an expert for several ISO and CEN standardisation technical committees, and is an officer and board member of the newly founded Europe Chapter of the IPMI.

Chart 5: 2015 PT Results






LBMA Annual Party 2015

By Aelred Connelly, Public Relations Officer, LBMA

The LBMA's Annual Party was held this year at the All Stars Bowling Lane on Thursday, 26 February. The theme of the party was 1950s – Rock and Roll. More than 200 Members and Associates attended the event. The main source of entertainment for the evening was a ten-pin bowling competition in which more than 20 teams competed for the prestigious title of 'LBMA Bowling Champions, 2015'. In a closely contested final, CME won in a hard-fought final against G4S. The photo (see photo above second from the left) shows the winning team with their medals, which were awarded to them by Ruth Crowell, Chief Executive of the LBMA. Congratulations should also be extended to Scott Stillitoe (Prebon Premex) for achieving the highest score on the night with 101. Further entertainment included Wii games and karaoke. Despite some lamentable singing, great fun was had by all.

Three prizes were awarded for the best dressed attendees. The winners (see photo below 3rd from the left) are shown in the photo holding their prize of a bottle of champagne. Pictured left to right are Claire Rosser (Brady), and Emma Dickerson and Emma Croft (both from Barclays). Congratulations to all three for making the effort to dress in authentic fashion.

The party provides an opportunity for staff of Members and Associates to network and socialise in a relaxed and informal atmosphere. The feedback from those who attended was very positive and a thoroughly enjoyable evening was had by all.




Neil Newitt: Another World...

By Dr Michelle Blagg, Research Associate at the Institute of Contemporary British History (ICBH)

Neil Newitt (far left) representing Sharps Pixley at the Gold Fixing in 1972

As part of her 'Voices Project' capturing, contextualising and explaining the London bullion market, Michele Blagg interviews Neil Newitt, one of the original signatories of the memorandum incorporating the founding of the LBMA in 1987.

A second career began for Neil in February 1968 when he joined Kleinwort Benson, having first joined the Royal Navy at 16, serving 11 years working his way through the ranks from Writer, Leading Writer and then Petty Officer Writer, before qualifying as an Officer. Married with three small children, he wanted to spend more time at home. Unfortunately, he would wait another 30 years before his plan worked out. During his time working in the bullion markets, he spent years on aeroplanes, away much more than if he had stayed in the Navy, where he was guaranteed a monthly salary and a job until he was 40, before retiring with a good pension. It was a gamble to turn his back on this security and an annual salary of £1,200.

The first bank to offer Neil a position was Lloyds, offering a disappointing salary of £800. However, a contact in the wardroom mess said "I know somebody who works in the City", Neil recalls. "This Colonel somebody or other, a real blimpy type, kept nagging and nagging me, because he knew I wanted to leave and he said 'Why don't you try and go to this bank?', which was Kleinwort Benson,"[1] which offered him a job with a salary of £1,200.

The role was very basic in the Documentary Credits Department, which Neil referred to as "not the world's most exciting job". Then, in March 1968,[2] as chaos broke out in the gold market, his manager said: "You are only a trainee, you aren't doing anything important here, so we are going to second you to a subsidiary company we have. They are under a great deal of pressure and we have agreed to lend you to them for a month or so." Not quite sure what to expect, he turned up the next Monday at the offices of Sharps Pixley:

"I didn't know who they were, but I found out they were one of the members of the London gold market, the Fixing, and I was introduced to the Managing Director, Stewart Pixley, the great, great grandson of the founder of the company ... There were tons of gold bars coming in from New York – around 1,000 tons in that week alone. The only way that they could ship it was to send it from the US Federal Reserve in New York in huge US Air Force planes that went to Stansted Airport, and Brinks would collect it and deliver it to the Bank of England, where the five bullion dealers would buy it from the Gold Pool."

Brinks would then take the gold from the Bank of England and deliver it into the huge bullion vault in Finsbury Square operated by Sharps Pixley. Neil remembers his horror and how miffed he felt when he was given a pair of overalls and a pair of thick canvas gloves, and was told he would have to weigh all this gold. It was a huge job! "This isn't what my new career led me to believe would happen," he thought. As the flow of gold abated, he moved across to the main office, temporarily acting as Office Manager and covering for an ill colleague. On his return, Neil hoped to resume his "lovely posh" merchant banking career at Kleinwort Benson, but when he tried to move back, Stewart Pixley said: "No, we don't want you to go back. We would like you to stay but not as a porter. How would you like to come into the dealing room?" It sounded interesting, so Neil stayed for the next 14 years.

Dealing rooms then were nothing like nowadays. Neil described his working environment as "very basic. The only outside means of communication were telephones and telex – no computers, no fancy gadgetry at all. You just picked up the phone or people from all over the world would telex, and you would make a price and off you would go."

> *" no computers, no fancy gadgetry at all. You just picked up the phone or people from all over the world would telex, and you would make a price and off you would go. "*

Things began to change after the 1974 US Government liberalised[3] the holding of gold. Since 1933, American citizens had been prohibited from owning gold. This move opened up a whole new trading area. Witnessing the opening of the market and the advance in technology, Neil noted that:

"The Commodity Exchange started offering contracts and Reuters came up with this

1 Kleinwort Benson acquired Sharps Pixley in 1966, which increased the range of services the bank could offer clients, as it decided to link gold bullion to foreign exchange trading.

2 In 1961, the Central Banks Gold Pool, operated by the Bank of England, was formed to stabilise the price of gold at around $35 an ounce. In January/February 1968, there was speculative fever that the US would abandon the Gold Pool and suspend convertibility of the dollar into gold. Rising gold demand, falling US gold reserves and losses from the Gold Pool reaching $400 million on Thursday 14 March persuaded the Bank of England to close the London Gold Market the next day, which remained closed for two weeks. When the market reopened on the 1 April 1968 to revised instructions from the Bank of England, the gold dealers announced that the London gold price would from now on be quoted in US dollars and that they would waive commission charges on gold purchases, while imposing a charge of a quarter of a percent on gold sales (for further detail, see: Rae Weston, Gold, A World Survey [1983], pp.14-15).

3 Between 1933 and 1974, it was illegal for US citizens to own gold in the form of gold bullion, without special licence. On 1 January 1975, these restrictions were lifted and gold could be freely held in the US without any licensing or restrictions imposed.

fantastic technology. It was a bit like a calculating machine with buttons that you pressed and at the end there was a rectangle with three orange neon circular bulbs, and we thought this was fantastic! All you had were three of these things, each showing a different digit. To make it even more difficult, it only showed the last three digits of whatever it was … you had to know that you had put it on the gold button and not the silver button, or the cocoa, or whatever. We thought this was a great advantage, so it helped a little bit."

The dealing room at Sharps Pixley had two of the Reuters machines. Another thing that Neil pointed out, which he thought most modern dealers would find incredulous, was that at the end of the day, he would send a telex to his customers in Hong Kong, offering them a sale price for 9999 kilo bars, and another to Dubai offering a sale price for 995 tola bars, which they liked, and the price would be good until they got back in the next morning. There were no other markets open to his customers through the night and he would find out if he had sold 100-kilo bars in Hong Kong or so many 10-tola bars in Dubai. The dealers would then think about their position, because they had sold the gold and may not have had it in their book yet, so they would have to decide whether they covered it, or left it. Neil observed that at that point in time it worked, but it wouldn't now because "positions change from minute to minute and you have got to be completely on the ball".

recalled the huge dhows that went cracking out of the small creek across the sea and, with the right bribes, would by-pass the Indian Customs. The profit margins made the risk of being caught worthwhile. This soon changed as markets became more international. In 1974, following the legalisation of gold imports in Hong Kong,[4] Neil and his family were posted overseas to Hong Kong, where he was asked to establish an office for Sharps Pixley. He learnt the language and was soon quoting gold and silver in Cantonese. It was a difficult language to learn and he fondly remembered how he "loved that the Hong Kong Chinese were absolutely wonderful and quite often I would be the only gweilo (foreign devil) at dinner with the local gold dealers at the restaurant. The one thing that I learnt for sure was never ask what you are eating, just eat it – much better if you don't know."

"Tempers flared and people would throw phones and kick things.The market eventually calmed down. Then not long after, Neil received an offer to join Goldman Sachs."

The dealing room at Sharps Pixley circa 1982

Dubai was an emerging market for Sharps Pixley, although the market had long been synonymous with the unofficial export of gold and silver to the Indian subcontinent. On one visit, Neil

Contact between the Hong Kong and London offices took place daily, because most transactions carried out were loco London, which the office would process. Occasionally, one of the London team would go out to Hong Kong for meetings. The posting lasted for three years. Neil headed back to the London dealing room via an adventurous trip on the Trans-Siberian Railway,[5] just in time to witness the market get crazier and crazier as the price of gold rose sharply from December 1979. Speaking of this eventful period, Neil described how:

"At the end of December, gold was around $400 or thereabouts, the 21 January 1980 saw a memorable Fixing of $850, two days later the pm Fixing was $650 and we were quoting $10 dealing spreads. Silver was being finagled by the Hunt brothers.[6] Silver on the 21 or 22 January fixed at $50 … It was quite unbelievable. I think by March gold had settled back down to around $450. Things began to cool off."

Before the age of computers, during this period, it was a very tense and stressful time in the dealing room trying to keep positions updated. Neil described the experience as "flying by the seat of our pants! You really didn't know what was going on, except every time you got a phone call, you probably had a problem."

Tempers flared and people would throw phones and kick things. The market eventually calmed down. Then not long after, Neil received an offer to join Goldman Sachs.

In the early 1980s, the American banks began getting really interested in having a presence in London. Neil received numerous calls from friends at J. Aron,[7] asking him to go and talk to them. He resisted, but eventually Dennis Susskind, a partner at Goldman Sachs and well known in the market, called him up and said: "Look, just come and have a talk with me." So Neil said "OK". He had to rush off to the local travel agents and book a business class ticket to New York for the Thursday overnight flight (this was long before on-line internet booking was available). His wife was concerned about the cost of the ticket, but he reassured her that it would be reimbursed. It was all hush hush. Taking a day's leave, Neil headed off to New York from Heathrow after work on Thursday evening. Landing on the Friday morning, he headed straight to the office, where he had the "toughest day" of his life. They really put him through the mill before he got the evening flight back to London. The following Wednesday, he received a call offering him a job. He shared with me that "there was a pay rise. The salary was very modest at Sharps Pixley and slightly less modest at Goldman Sachs. The days of big salaries were not around then." Having accepted the post, Neil asked that nothing be done until he was able to talk to his boss at the time, Jack Spall. Unfortunately, Jack beat him to it and the following day buzzed down and asked Neil to go

4 For many years, Hong Kong was a closed gold market, while its citizens could trade among themselves in tael bars, the British authorities banned direct gold imports into the colony. In 1974, free imports were again permitted (for further detail, see: Tim Green, *The New World of Gold* [1982], 145-154).

5 Neil made the journey with his son back to the UK via the Trans-Siberian Railway. At that time, you couldn't go from Hong Kong to Beijing, so they flew to Japan, took a ship from Yokohama to Vladivostok and then on to Nakhodka, where they took a train up to Khabarovsk, which then went all the way across Siberia, taking about eight days to cover 10,000 miles. The cost was about £200.

6 Nelson Bunker Hunt and his brother William had for some time been attempting to corner the market in silver. In 1979, the price jumped from $6 per troy ounce up to a record high of $48.70 per ounce. In January 1980, exchange rules regarding leverage changed, placing heavy restrictions on the purchase of commodities on margin. The Hunt brothers had borrowed heavily to finance their purchases and as the price began to fall, they were unable to meet their obligations, causing a panic in the markets (for further details, see: Stephen Fay, *The Great Silver Bubble* (1982).)

7 Goldman Sachs acquired J. Aron & Company in November 1981. J. Aron, a commodities trading firm, was merged with the Fixed Income division at Goldman Sachs and formed the Fixed Income, Currencies and Commodities division.

and have a word with him. Jack had received a phone call letting him know that the move was afoot. Things were smoothed out. Neil found it hard to leave Sharps Pixley behind, but off he went to what he describes as "another world".

Amazed by the quality, the intellectual capacity and the things that Goldman Sachs did, Neil was very impressed with his new working environment. His initial doubts about whether he could cope with the new working regime soon abated, as he split his time between sales and his forte, communicating with customers. Personalising relationships was the key to success during this time before the internet and email. Neil would pick up the phone and know his customers voices, which went down very well. As he pointed out, "a central bank can deal with any of 20 people, why should it deal with you? Because he knows you, you have been out for a meal and you are pretty good friends, and you know his family – that kind of relationship building."

Neil was one of four signatories on the original memorandum incorporating the founding of the London Bullion Market Association, signed on 27 November 1987. As the American banks – Goldman Sachs, J. P. Morgan, Citibank and others – had a greater presence and share of business in the London market, opening new offices, competition became fierce. The American banks were very competitive and were a serious threat to the dominant members of the Fixing, in which of course they were excluded from taking part. The main five Fixing brokers had good relationships with each other, socialising and communicating. Neil explained that having worked for one side and then the other, he was part of the team tasked to find a mutually satisfactory solution to the situation, so that old and new could work together. Despite some of the objections faced from a number of diehards – "Who needs these bloody foreigners?" and "It's our market!" – during meetings at the Bank of England, then the ultimate regulator of the bullion market, the solution reached was the foundation of the London Bullion Market Association, which brought the American banks under its aegis. Neil's recollection of events was that:
"It was a satisfactory resolution ... Things didn't really change to start with. Various members from both sides came into the Committees ... There were some who, anxious to get in on the management, felt excluded by the stuffy old gold market members, [but on the whole] the dealers and traders and the other members got on well together."

> *"Amazed by the quality, the intellectual capacity and the things that Goldman Sachs did, Neil was very impressed with his new working environment. His initial doubts about whether he could cope with the new working regime soon abated"*

Neil's time working in the London market was one of the most interesting periods in its recent history – 1968 and 1980 were seismic! He participated in the Gold Fixing, dealt with many central banks and governments, lived in and travelled all over the world to many weird and wonderful places, and experienced some bizarre travel arrangements and hair-raising plane journeys. Neil retired in 1999, aged 60, but continued to travel. For a time, he set up and headed a Land Rover Charity driving across Europe delivering humanitarian aid to Bosnia-Herzegovina. As for his wife, who had had enough of never seeing him, he assured me that "she still quite likes me even now that I have been retired for 14 years!"

The photograph shows (left to right), Stewart Pixley, Neil Newitt, Walter Annenberg (US Ambassador to the UK from 1969) and Sir Cyril Kleinwort, analysing the Sharps Pixley coin collection.

In the 1970s, Sharps Pixley did a good trade in gold coins. Part of the UK gold reserves were in gold sovereigns, with coins coming in canvas bags containing 1,000 coins, made up of new and old coins. They were an unbelievable treasure trove and when the bags arrived in the dealing office, they would sort through them to pull all the numismatic coins out and replace them with ordinary sovereigns. The coins could be Victorians, right from the beginning of Victoria's reign, the Diamond Jubilee and the end of her reign, when she was depicted as a widow with veiled head. The Edwards were all the same, but in those days of colonial empire, sovereigns were minted in Pretoria, Ottawa, Delhi and Sydney (these were much rarer than the other sovereigns). Over the years, staff at Sharps Pixley compiled a collection containing every sovereign ever minted.

My thanks go to Neil for kindly agreeing to the release of the transcription of the recording made at the LBMA office on 13 May, 2014 for the Voices Project upon which this article has been based.

Dr Michele Blagg (BA, MA, PhD) is a visiting Research Associate at the Institute of Contemporary British History (ICBH) at King's College London. Michele is a Research Consultant for the LBMA, currently engaged on the oral history project 'Voices of the London Bullion Market'. As part of a collaborative doctoral award granted by the Arts and Humanities Research Council, she was based at the Rothschild Archive. Her doctoral research focused on the Royal Mint Refinery, operated by N M Rothschild & Sons between 1852 and 1968, and how it adapted to the changed London gold market.

Her areas of interest are in financial and business history with special regard for the actors and networks located in the London market.

She teaches on the MA in Contemporary British History and assists with the Witness Seminar Programme. She sits on the Business Archives Council Executive and is involved in the annual 'Meet the Archivists' workshop held in the City that aims to explore ways in which research students can identify and use business records in a variety of different research fields.

LBMA Certified Reference Materials

As part of our promotion of quality and good practice in the refining and trade of gold and silver, the LBMA produces and sells Gold and Silver Certified Reference Materials (CRMs). CRMs are available to any laboratories that would like to calibrate their analytical equipment using LBMA standards.

There are currently three gold CRMs and two silver CRMs available. AuRM1 and AuRM2 (available as a set only) are intended to be used for the validation of analytical methods for trace metallic impurities in gold, such as Spark optical emission spectrometry. AuRM3 is intended to be used for the validation of instrumental methods for determining the concentration of trace metallic impurities in gold, such as X-ray fluorescence and optical emission spectrometry, using spark or inductively coupled plasma. AgRM1 and AgRM2 are intended to be used for the validation of analytical methods for trace metallic impurities in silver, such as spark optical emission spectrometry. They can also be used in the calibration of analytical instruments.

The table below lists the elements for which certified values have been established with expanded uncertainty.

Please refer to the Good Delivery section of the LBMA website for further details or email gdl@lbma.org.uk.

Certified Elemental Concentrations (mg/kg)

Reference Material	Ag	Al	As	Au	Bi	Ca	Cd	Cr	Cu	Fe	In	Ir	Mg	Mn	Ni	Pb	Pd	Pt	Rh	Sb	Se	Si	Sn	Te	Ti	Zn
LBMA AuRM1	20.0	9.6	14.5	x	30.4	9.6		9.4	13.5	10.6			30.1	9.7	9.8	9.8	9.7	10.3	7.3	35.7	11.8	9.4	9.7	40.7	10.5	10.3
LBMA AuRM2	99.6	28.3	47.1	x	9.7	28.0		27.7	31.6	30.1			9.9	28.2	29.2	28.9	29.2	30.2	39.6	11.3	37.4	28.0	29.4	12.0	31.6	31.4
LBMA AuRM3	4456			x					317	21.0	15.4	6.3			13.4	23.6	25.8	25.4					12.2		7.8	12.6
LBMA AgRM1	x	7.9	19.0	6.1	7.3		8.0	62.9	30.2	22.4			13.9	8.9	66.1	37.5	5.2	5.5	13.4	4.5	23.0	10.0	49.2	4.7		26.9
LBMA AgRM2	x	61.8	5.5	26.2	40.8		23.5	8.8	110.5	15.7			49.3	16.1	10.6	5.6	23.1	20.9	4.6	23.6	8.6	54.6	4.5	38.1		5.2

DIARY OF EVENTS 2015

MAY

06
The Silver Institute
World Silver Survey Audiocast
New York
www.silverinstitute.org

11-12
MEI Precious Metals 2015
Falmouth, UK
www.min-eng.com

18-22
LPPM Platinum Week 2015
London, UK
www.lppm.com

20
Global Mining Finance – Precious & Base Metals Conference
London, UK
www.global-mining

25-27
Asia Mining Congress 2015
Singapore
www.terrapinn.com

26-28
Mines and Money
Beijing, China
www.minesandmoney.com/beijing/

JUN

01-02
Peru Mining Summit
Lima, Peru
www.latinmarkets.org

13-16
39th Annual International Precious Metals Institute Conference
San Antonio, Texas
www.ipmi.org

25
LBMA Bullion Market Forum
Mandarin Oriental Hotel, Shanghai, China
www.lbma.org.uk

JUL

03
LBMA AGM
Glaziers Hall, London, UK
www.lbma.org.uk

26-28
Gold 2015 World Conference
Cardiff, Wales
http://sites.cardiff.ac.uk

AUG

03-05
Diggers & Dealers Forum 2015
Kalgoorlie, Australia
www.diggersndealers.com.au/

21-23
12th India International Gold Convention
Grand Hyatt, Goa, India
www.goldconvention.in

23-26
2015 Conference of Metallurgists
Toronto, Ontario
Web.cim.org/com2015/

SEP

16-18
China International Silver Conference 2015
Shanghai, China

16-18
Precious Metals Summit
Park Hyatt Beaver Creek, Colorado, USA
www.precioussummit.com/

20-23
Denver Gold Forum 2015
Hyatt Regency, Denver, Colorado, USA
www.denvergoldforum.org

OCT

12-16
LME Week 2015
www.lme.com

18-20
LBMA/LPPM Precious Metals Conference 2015
Vienna, Austria
www.lbma.org.uk

NOV

03-04
2015 Precious Metals Summit
Park Hayatt, Zurich, Switzerland
www.precioussummit.com

Regulation Update

By Sakhila Mirza, LBMA General Counsel

Responsible Gold Guidance (RGG)

Refiner audit reports

It has been three years since the LBMA launched its Responsible Gold Guidance (RGG). Both the refiners and auditors have worked hard during this time to understand the requirements and to ensure the LBMA RGG has been implemented successfully. The LBMA RGG extends the OECD Gold Supplement for Refiners and builds on existing Anti-Money Laundering and Know Your Customer management systems and auditing practices. It also makes what is a voluntary system (the OECD Guidance) mandatory for all LBMA Good Delivery gold refiners wishing to be accredited for the London Bullion Market. As per the RGG, all refiners have three months from the end of their financial year to submit the independent audit report to the LBMA. For most refiners, this deadline for the 2014 production is March 2015. The LBMA is continuing to receive audit reports. We are hoping that by the next edition of the *Alchemist*, we can report that the majority of the Good Delivery refiners have successfully passed.

Fair Effective Markets Review

The Fair and Effective Markets Review was set up by the Chancellor and the Governor of the Bank of England on 12 June, 2014. It is a joint review chaired by the Bank of England's Deputy Governor for Markets and Banking, Nemat (Minouche) Shafik, with Martin Wheatley (Chief Executive Officer, FCA) and Charles Roxburgh (Director General, Financial Services, HM Treasury) as co-chairs. The full consultation document, entitled 'How fair and effective are the fixed income, foreign exchange and commodities markets?' examines what needs to be done to reinforce confidence in the fairness and effectiveness of the Fixed Income, Currency and Commodities (FICC) markets. The precious metals markets are referred to a number of times throughout the Review. The LBMA response is available on the Bank of England website for public review (http://www.bankofengland.co.uk/markets/Documents/femr/lbma.pdf

In summary, the LBMA indicated that there was no need for further regulation but supported the need for further transparency through post-trade reporting. The LBMA also took the opportunity to describe the characteristics of the precious metals markets and the controls that exist to help the market to operate against a fair and effective framework. The Review will be able to take the existing framework into consideration before coming out with its proposals later this summer. The LBMA has welcomed the opportunity to provide further support and advice on the precious metals markets and to work closely with the Review to help implement its agenda. This all ties in very closely with the LBMA strategy which is featured in the Editorial on page 26.

Other regulatory news…

Basel III: The LBMA is working with the World Gold Council and has launched a survey for its member banks to complete. The survey is focused on getting actual data from the banks in order to defend the position that by imposing a fixed Required Funding Ration of 85%, it would have a significant impact on the banks. Gold is a unique commodity and its specific attributes should be taken into account.

Financial Conduct Authority (FCA): Benchmark Consultation: The LBMA submitted a response to the EU on the FCA Consultation Paper (CP) on Benchmarks. The CP was focused on amending the existing FCA rules that were written for LIBOR by extending the scope to include seven additional benchmarks, which include the LBMA Silver Price and the LBMA Gold Price. The CP drew a distinction between benchmarks that had submitters and therefore needed to be regulated directly, and those benchmarks that had non-submitters and therefore did not need to be regulated. The LBMA in its reply asked for further clarity on the proposal under the CP.

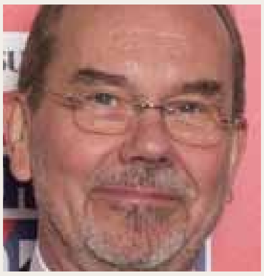
OECD Forum on Responsible Mineral Supply Chains, 4-6 May, 2015

LBMA members, particularly banks and refiners, are encouraged to attend this event in Paris. Please contact the LBMA for further details at regulatory.affairs@lbma.org.uk

EU Update

The LBMA Executive received an invitation from the secretariat of the Committee in International Trade of the European Parliament (INTA) to take part in the special technical briefing with external experts on practical aspects of due diligence and responsible sourcing of minerals, in January 2015. The LBMA was given the opportunity to explain the detail of its RGG and to share our experience of implementation. It was explained that refiners have an incentive to implement and comply with the LBMA's programme, because otherwise they would be removed from the Good Delivery List. The LBMA is of the view that industry programmes should be recognised by the European regulators, under their regulation on conflict minerals. If the European Union proposed another audit independent of what the LBMA has in place, it would undermine the credibility of the industry programme.

Obituary - Tony Baird



It is with deep regret to report the passing of Tony Baird on Sunday 12th April, 2015. Tony was the founder and Chairman of Baird & Co, a stalwart of the London bullion market who regularly attended industry events including those organised by the LBMA. He will be sadly missed. Tony Dobra, Executive Director of Baird & Co, recalls his life.

Antony Stephen Baird was born in 1942 at the family ancestral home in Lanarkshire in Scotland. Shortly after the war the family moved to London. After leaving school, Tony set off to see the world with just his guitar for company. Having reached Perth, Australia, he settled down and took up ocean yacht racing, taking part in many famous events including the Sydney to Hobart race. On returning to London, he took up motor racing, competing in ultra-light weight Berkeley sports cars.

Tony began bartering coins at school but it was not until 1967, and the launch of the South African krugerrand, that he took up coin dealing as a full time occupation. By the mid 70s Tony had established a permanent office in Stratford and would often drive to Switzerland in his E-Type Jaguar to collect thousands of gold coins. In 1982 VAT was applied to gold coins and the subsequent collapse of the UK gold coin market encouraged Tony to diversify in to other gold products, particularly jewellery manufacturing and more recently producing small gold bars. He was instrumental in designing Baird & Co's new refinery and factory premises in Beckton, which opened in 2008.

Tony leaves his wife Lorena and two sons Alex and Carlos. A very small private funeral has been arranged although a party will be held on 10 September, 2015 to celebrate his life and LBMA Members are welcome to attend.

Obituary - Madhusudan Daga

By Stewart Murray, LBMA Good Delivery Consultant

Daga-ji on home ground at the Zaveri Bazaar, Mumbai in 1994

26 December 1926 – 2 April 2015

The passing away of Madhusudan Daga – Daga-ji as he was affectionately known in the Indian bullion market – at the age of 88, is a very sad loss for all who knew and loved him. The Indian market now has to say farewell to its most knowledgeable and engaging observer.

In his long life, Madhusudan Daga played many parts and even for his friends in the bullion market, some of his previous roles may come as a surprise. Many are aware that he was honoured by the Indian government as a freedom fighter after independence in 1947. His contribution to the struggle (including the blowing up of railway lines) led to him being jailed by the British authorities and there was a delicious irony that the new Indian government subsequently awarded him a lifetime freedom pass on the Indian railway system. He went on to make great use of this pass during his career as a journalist and perhaps even more so as he developed into the Indian bullion market's most respected analyst, commentator and advocate.

What is much less known is that in his youth he went through a 'playboy' phase – when he produced a Bollywood film (with a well-known actor as its star), when he was a racehorse owner and, most surprising of all to those who knew him only in his mature years, when he was a whiskey drinker!

All this changed when he met his guru whose picture, surrounded by dried flowers, was the first thing that you would see on entering the small but welcoming apartment just behind Worli Seaface in Mumbai where Daga-ji lived until the end of his life. This meeting was clearly a transformative experience for him which ultimately led to his becoming the towering presence in the development of the Indian precious metal markets in the second half of the 20th century. Henceforth, he was a devout, teetotal, strict vegetarian whose career as a journalist flourished in parallel with his growing interest in, and understanding of, the gold market in India.

During his purely journalistic career, he interviewed some very famous people, including Rajiv Gandhi. But gradually his interest focused more and more on gold and he began to develop a most amazing network of contacts throughout the country. Long before LinkedIn or Facebook (Mr Daga acquired his first computer when he was in his 80s), his little black book contained the names and addresses of many hundreds of people who were involved in every aspect of the market: ministers, bureaucrats, central bankers, bullion dealers and commercial bankers, jewellery manufacturers and retailers, other journalists covering the sector and, finally, the one group about which he was somewhat coy, the smugglers who ensured a continuing supply of gold bullion to the Indian market during the period of Gold Control.

Gold Control was introduced by the Indian government in 1963 in an attempt to minimise ownership of gold by the population and to prevent foreign exchange being used for imports of new gold. However, the main impact was to force the local price to a very high premium compared with the international market, the main beneficiaries of which were the smugglers. Together with his friend Shantilal Sonawala, Daga-ji became the main advocate for the abandonment of Gold Control and their efforts bore fruit in 1990 when the act was repealed.

From an international perspective, the name Madhusudan Daga meant virtually nothing until he was listed as one of the contributors to the 1986 edition of the annual Gold Survey, which had been published by Consolidated Gold Fields since 1969. But as Tim Green (who as a consultant had been mainly responsible for the research on gold for the Survey since its outset) notes, Mr Daga's information on India had always represented a key element in understanding the development of the market there.

My own first experience of Mr Daga (I never addressed him as anything else) was in 1987 in Gold Fields' elegant St James's Square offices, where at the time I was employed as a so-called copper expert. In common with many of my colleagues, I wondered who this rather wizened, elderly Oriental visitor was. But it was only several years later, after I had had the privilege of setting up Gold Fields Mineral Services and started to visit India on a regular basis, that I began to understand what made him so special. On the one hand, his investigative journalist's nose led to him uncovering amazing facts about, for instance, the use of gold in the manufacture of *jari* and the large quantities of silver that were sold in *gutkha* (chewing tobacco). His journalistic scoops included the pledging of gold by the Reserve Bank of India during the currency crisis in the early 1990s and he reported on the round tripping of gold before many in the trade even knew about it. On the other hand, travelling the length and breadth of India with him, in an attempt to understand how this fascinating market was developing, I not only met many of those listed in the little black book but I also got to appreciate him for his humanity. For most of his life, Mr Daga was a diabetic – a condition which he controlled by means of either long walks or the consumption of dried chapattis (without a supply of which he never travelled). But he took this affliction literally in his stride and never complained. Apart from all of the above, my abiding memories of Daga-ji were his loyalty, kindness, sense of humour and determination that not only he but everyone else should do the right thing.

His like will not be seen again.

Tim Green writes:
I first met Madhusudan Daga at the Bombay Bullion Association in the early 1970s, which I was attending in the first years of the Consolidated Gold Fields annual survey (now the GFMS survey). His challenging questions, both to me and the Association, established him as a dedicated reporter.

Since I was a reporter too, we had much in common in seeking out the secrets of India's gold trade. From that first meeting, he tended to park himself in my room at the Taj Mahal Hotel, constantly on the phone seeking prices and trends. Over the next 25 years, whenever I arrived in Bombay, usually from Dubai, he was waiting at the aircraft ramp to bustle me through customs with his press card, thence to the gold traders in the city.

In the evenings, we walked by the sea along Worli Seaface still talking gold. Once we met an acquaintance of his: rather than pleasantries about the sea breeze giving respite from the heat, we fell immediately into a discussion on gold. "Every Indian woman, rich or poor, must have gold for security," explained our fellow walker, "and as it is a social privilege, the sale of family ornaments is a blot on the map."

Madhusudan Daga led a simple life in a flat near the sea and was looked after by two women whom he had rescued from a refuge at the end of his street. He was a great friend who will be missed by many.

LBMA News

By Ruth Crowell, Chief Executive, LBMA

MEMBERSHIP

Standard Chartered Bank was reclassified as a spot and options Market Maker on 9 February and Toronto Dominion Bank was reclassified as a forward Market Maker on 19 March. This brings the total number of LBMA Market Makers to 15. The full list of Market Makers on the LBMA website shows the products (spot, forwards and options) provided by each company.

On 20 January, Coeur Mining Inc. was admitted as an Associate and on 12 March, Metals Focus Ltd was also admitted as an Associate. On 27 January, Glencore International AG was admitted as an Ordinary Member and Britannia Refined Metals Ltd resigned as an Ordinary Member following a merger between Xstrata Plc and Glencore Plc. On 12 March, VTB OJSC was admitted as an Ordinary Member (formerly an Associate). These changes brought the membership to 146 companies, comprising 77 Members (of which 15 are Market Makers) and 69 Associates.

GOOD DELIVERY LIST

On 5 January, the silver refinery of Hunan Yuteng Nonferrous Metals Co., Ltd and Yanggu Xiangguang Copper Co., Ltd were both admitted to the Silver Good Delivery List. There are currently 73 refiners on the Gold Good Delivery List and 83 on the Silver Good Delivery List.

COMMITTEES

Management Committee
The Committee worked with the Executive, the Regulatory Affairs Committee and the Market Makers group to ensure that the new LBMA Gold Price was successfully implemented as planned on 20 March. ICE Benchmark Administration (IBA) provides the auction platform, methodology as well as overall independent administration of the transparent electronic auction process. The LBMA's new subsidiary PMPL holds the Intellectual Property (IP) rights for the new price. There are seven direct participants who currently contribute to the LBMA Gold Price: Barclays Bank, Goldman Sachs International, HSBC Bank USA NA, JP Morgan, Societe Generale, The Bank of Nova Scotia – ScotiaMocatta and UBS. Members of the market are encouraged to contact IBA in order to become direct participants (iba@theice.com).

As well as assisting the Regulatory Affairs Committee with important work on precious metal benchmark prices, the other main priority for the Committee is the long-term strategy and structure of the Association (see the editorial on page 26). This is in view of the fact that the market needs more support given the changing regulatory and infrastructure landscape. The Committee is therefore considering the future structure, governance and organisation of the LBMA to ensure that it continues to meet the requirements of its members in an ever changing financial environment.

The Committee is also involved in reviewing the work of the SubCommittees below.

Regulatory Affairs Committee
The attention of the Committee in recent months has been focused on developments with precious metals benchmark prices, particularly in preparation for the launch of the LBMA Gold Price on 20 March. This work is reviewed in a feature article by Sakhila Mirza on page 3.

The LBMA's role in providing market infrastructure has recently increased from the Good Delivery accreditation to encompass benchmarks. Going forward, it will have broader scope of work to contend with as regulatory requirements increase. These regulations include US Dodd-Frank, MIFID and MIFIR, as well as the potential regulation resulting from the Fair Effective Markets Review (FEMR). FEMR focuses not only on benchmarks, but on the entire structure and conduct of the London precious metals market. For further information, please read the Regulation Update on page 22.

Physical Committee
Since the publication of the last edition of the Alchemist, two new refiners have been added to the silver list. There are currently two active applications – one for gold and one for silver – and four applications are expected – one for gold and three for silver.

The GDL website has now been modified to accept GDL Refiner kilobar information. The website will be updated as further information becomes available. It is envisaged that packaging information will also be included.

The latest round of proficiency testing was completed and the report was circulated to all participants. For the first time, the Proficiency Testing scheme was extended to include Supervisors and Assay Offices. A presentation was delivered by Jonathan Jodry at the recent LBMA A&R Conference and a transcription of his presentation is reproduced on page 14.

The latest round of Pro-Active Monitoring has commenced (Round 28) and the 11 refiners involved have been informed.

Visual Guide II is now at an advanced stage and is due for completion by June 2015. An update to this effect was also presented by Stewart Murray at the LBMA A&R Conference.

Raj Kumar and Neal Johnson have both resigned from the Committee and the LBMA would like to take the opportunity to thank them for all their hard work and sterling contributions to the work of the Committee.

Membership Committee
The Committee continues to review a growing number of Membership applications, which demonstrates the growing relevancy and diversity of the Association. Two new mining companies have joined the ranks of the Association. The LBMA welcomes other producers to join and have a voice in the London market. Another demonstration of the diverse reach of the Association is the recent interest expressed by some central banks.

In order to strengthen the voice of the refiner in the Association, the Committee has also agreed to allow Good Delivery refiners to apply for Ordinary Membership, not only Associateship. This means more refiners would have the opportunity to vote as well as stand for the Management Committee. Any refiners, producers or central banks who may be interested in doing so are invited to contact Sunny Field at sunny.field@lbma.org.uk. Further refiner, producer and central bank membership would be a welcome development and would further extend the breadth and strength of the LBMA.

Finally, there has also been an increase in the number of Market Makers in recent months. There is now a total of 15 Market Makers, with the prospect of further additions later in the year.

Public Affairs Committee
The Committee is actively preparing the speaker programme and arrangements for this year's LBMA Bullion Forum, which will be held in Shanghai on 25 June. This event focuses on the growth of the precious metals market in China and Asia generally. Please refer to the LBMA website for further updates.

The other main focus for the Committee is preparing another high-quality programme of speakers for this year's LBMA/LPPM Conference on 18-20 October in Vienna. Speaker highlights include Keynote Speakers Lord Gus O'Donnell, Strategic Advisor to Toronto-Dominion-Bank, and John Authers, Senior Investment columnist at The Financial Times. In order to ensure this year's event is not compromised by overcrowding, there will be a cap on the maximum number of possible delegates. Registration for the event will open in June and will be on a first come, first served basis.

The PAC is delighted to welcome Jonathan Butler of Mitsubishi as its newest member. This position became available following the departure of Tom Kendall and Anne Dennison. The LBMA is grateful to both for all their hard work over the years.

Other LBMA Events
The Annual Party took place on 26 February at All Star Lanes and was very well received by all those who attended. Photos and a summary of this 'Members' only' event can be found on page 17. Congratulations to the team from CME Group who won the bowling tournament.

The LBMA held its sixth Assaying & Refining Conference at the Millennium Hotel on 9-10 March. It proved a great success, with the highest level of attendance and presentations to date. A review of the conference can be found on page 12 and a presentation from Jonathan Jodry from Metalor Technologies is reproduced on page 14.

Finance Committee
Given the ongoing strategic review, the Committee is currently re-evaluating its short-term and long-term funding to ensure stability for the Association. As part of this, it was identified that Good Delivery annual maintenance fees had not been increased in over 10 years. During the past decade, the LBMA's Good Delivery work has significantly increased. Notable additions include Pro-active Monitoring, Proficiency Testing, Certified Reference Materials and, of course, the LBMA's Regulatory work, including REACH and Responsible Gold.

With an ever increasing workload, the costs associated with maintaining the Good Delivery List has dramatically increased. However, this has not been reflected in the Maintenance Fees in the last 10 years. The high volume of work required the LBMA to reach into its reserves in 2014 in order to address all of the challenges faced, resulting in a significant imbalance. The Committee therefore approved an increase to the Good Delivery List annual maintenance fees. From 2015, the fees are as follows: Gold or Silver (1 metal) – £8,000; Gold and Silver (2 metals) – £12,000. The increase in fees will now cover the GDL costs and, going forward, the LBMA will ensure that these are reviewed on a regular basis in order to offset any future dramatic increases in costs.

The annual external audit took place recently and it was pleasing to see that the accounts and processes received a clean bill of health, with no significant issues identified. The auditors were pleased to note that new controls identified in last year's audit had been successfully implemented.

Annual General Meeting
The Annual General Meeting of the LBMA will take place in Glaziers Hall, 9 Montague Close, London Bridge, on Friday 3 July at 16:30. This is an ideal opportunity for any interested staff in Member and Associate companies to hear about what the LBMA has been doing and to meet representatives of other member companies. This year, it will be the turn of the five Market Making member representatives to be elected (or re-elected). In line with the usual procedures the documentation including nomination forms for the Management Committee election will be circulated to the LBMA contact in each Member company in advance of the meeting. The AGM will be followed by refreshments at 17:30 in the River Room, Glaziers Hall.

LBMA Staff
The LBMA is delighted to announce a number of changes to the Executive team.

Neil Harby joined the Executive as Good Delivery List Officer in February and provides strategic support to the Chief Executive in the management and development of the Association's Good Delivery System. Prior to joining the LBMA, Neil worked at the Rand Refinery for more than 17 years as Executive Head, Technical Assurance. During that time, he managed a multidisciplinary team of scientists, engineers and ancillary staff that included the following disciplines: Mass Metrology, QA/QC, Metallurgical Services, Evaluation Services, Analytical Services and Metals Assurance.

Varsha Peiris has been appointed as the Good delivery List Co-ordinator. Varsha had previously been the LBMA's Office Manager.

Jamie Maskall has also joined recently in the Executive's newest position, Marketing & Communications Lead. This new senior role reflects the increased exposure and workload of the Association. He will be responsible for developing the marketing and communications strategy for the Association. Prior to joining the LBMA, he worked for Thinkbox, a not-for-profit marketing body for commercial TV in the UK. He also has over 10 years' experience within the advertising industry, including positions at Leo Burnett and Young & Rubicam, and brings a dynamic and new skill set to the Association.

Finally, the LBMA warmly welcomes Jamilah Leigh as Office Administrator. Jamilah's responsibilities include office management, processing membership applications and general administrative tasks to support the entire Executive team.

Market Moves

Rory McVeigh rejoins Commerzbank
Rory McVeigh has rejoined Commerzbank AG in London in the Precious Metals Sales team as a Specialist. He is returning as part of its new Global Sales Team with his expertise in PGMs and experience of more than 15 years in the market with Marc Rich Ltd, Mitsubishi Corporation, Commerzbank Luxembourg and BASF Metals Ltd in both trading and sales.

Mai Troung joins Commerzbank
Mai Truong has also joined the Precious Metals Sales team as a Specialist, in an internal move at Commerzbank in London after helping to establish Commerzbank Commodities as one of the best structured products providers in Europe. She joined Commerzbank in 2008 after working for four years at Deutsche Bank across different asset classes (credit, interest rates and structured commodities). She has also worked with a wide range of clients, from financial institutions, private banks and high net worth individuals to corporate, and will bring her knowledge and experience into the team to develop new products and solutions for the Precious Metals customers.

Richard Punt retires from JBR Recovery Ltd
Richard Punt, Operations Director at JBR Recovery Ltd, the UK's leading Good Delivery silver refiner, refining silver from waste and recycled materials, retired on 10 April 2015 after more than 35 years' service. He joined John Betts Refiners, which was then part of W Cannings plc, in 1979 as works project engineer, working his way from Technical Director to Operations Director, with responsibility for the West Bromwich-based refinery. **Keith Davies,** currently Operations Manager, has replaced Richard as the new Operations Director with effect from April.

Keval Sangani joins Toronto-Dominion Bank
Keval Sangani joined the Toronto-Dominion Bank Global Metals desk in London at the beginning of March in a Sales and Marketing role and will focus on the strategic growth and ongoing support of its client base in the EMEA region. He brings with him a high level of client-facing experience and product knowledge from his time at Deutsche Bank AG and latterly with Credit Suisse International.

A New LBMA – Strategy, Kilobars and International Engagement

Editorial Comment by Ruth Crowell, Chief Executive, LBMA

The LBMA has gone from strength to strength in the last year, but the evolution is not over. I look forward to addressing you in a year from now from a transformed organisation – one that not only provides the services that the international market needs but that also provides leadership for its future direction. As we have said on multiple platforms in the last year, we are developing the structure and governance of the LBMA to fit the needs of a changing market. The market has seen our work on benchmarks, but this is only a small part of the work of the LBMA. There has been an exponential expansion in the scope of the work of the Executive, and this started back in 2010.

A year in office and I'm happy to say that we now have the senior leadership team in house to professionally tackle the expanded scope of work. Neil Harby – Good Delivery Officer, Sakhila Mirza – General Counsel, Sunny Field – Operations Director and Jamie Maskall – Marketing and Communications Lead, have all joined in the last 10 months. In that short time, they have made an enormous impact. The injection of more senior leadership has fundamentally invigorated the organisation. For many years, the sheer volume of work has kept the Executive in a reactive, as opposed to, a proactive mode. Adding senior executives gives the Board the capacity to focus on the strategy and future vision of the LBMA. The new Executive can run the day-to-day business and the Board can focus on determining what the market needs from the LBMA going forward.

So let's talk about what's on the agenda for discussion at the New LBMA, or what I like to call 'LBMA International', copyright pending. We have already started work on consistent engagement in international markets, including the kilobars market, and more recognition for refiners and miners. We have continued our regulatory work via a new version of Responsible Gold as well as preparation for UK, EU and international regulation, in particular Basel III. As part of our recently launched Strategic Review, we will also consider a whole range of options for the benefit of the bullion market. This Review is being conducted through close consultation with the Membership and the global market, and will also incorporate the findings of the UK Fair & Effective Market Review, scheduled to be released in June.

As part of our enhanced engagement with international markets, we have recently launched registration for our Bullion Market Forum in Shanghai, 24- 25 June, which is being held in partnership with the Shanghai Gold Exchange. We are also delighted to be holding our third LPPM/LBMA Members' Reception in New York during Platinum Week. In August at the India International Gold Convention, we will be speaking and looking to engage in dialogue on international and local market issues. We have also recently launched a series of webinars to raise awareness of the major issues facing the market. These new events all complement the annual LBMA/LPPM Conference, which this year will take place in Vienna in October.

Turning to Good Delivery work, our involvement in the kilobar market was agreed last year when we announced that we would be assisting LBMA custodians by collating the kilobar drawings and pictures for Good Delivery gold refiners. So far we have received the kilobar specifications for half of the refiners on the Good Delivery List. This information will be kept up to date and will be available for LBMA custodians and their vaults in London and abroad. We are looking to further developing our kilobar work on this to assist our Members trading worldwide.

The discussion of kilobars is also one of the first items on the agenda for our new Refiners Forum. This advisory group is being set up in order to give refiners more of a voice and opportunity for dialogue with the LBMA. This will not disrupt or detract from the work of the LBMA Referees but will focus on general issues facing refiners. The Refiners Forum will give other refiners an opportunity to get involved in the work of the LBMA. We will also be looking to this advisory group to give feedback on the direction of the LBMA via its Strategic Review.

The changes to benchmarks over the last 10 months have been a challenge that we as a market have successfully met. The evolution of the role of the LBMA started back in 2010. This was with our efforts in Responsible Gold, where we did more than just tick the regulatory box required by the Dodd-Frank Conflict Minerals legislation. We created a long-term solution that set a high standard for the market. The LBMA's RGG programme enabled the market to smoothly face the Dodd-Frank regulation when it came into effect in 2014. Had we not broken the back of this, last year could have been even more disruptive when the rules came into place. Our Responsible Gold leadership and adoption of the OECD's voluntary standards have meant that as an industry we are now in a stronger position than the European tin, tantalum and tungsten markets. Gold as well as these other three minerals are also in scope of the forthcoming European Conflict Minerals legislation. These industries now have to revise their programmes to meet the OECD International standards, which the EU is planning to adopt. The gold industry has fully implemented our programme for refiners, based on the OECD Guidance and is regarded as a leader in this field.

With the benchmarks, we also showed leadership by taking ownership of the prices following detailed consultation with market participants and regulators. Not only did we manage to ensure that daily precious metal spot prices continued to be available to London and the international market, but we also ensured that the market had a voice via the LBMA. Our ownership of the intellectual prices means that the LBMA can react on behalf of the market if there are issues that need to be addressed. It also means that the London market was able to retain ownership of the family silver, i.e. the benchmark prices it had created over the past 100 years.

My vision for the New LBMA is that we continue to show leadership and long-term vision. We have launched our Strategic Review, with the assistance of EY, in order to achieve this. Part of the guiding principles for this work is to achieve more for the market than simple compliance. Let's use this opportunity to give the market some of the additional services it actually wants. Enhancement of services will not only strengthen the infrastructure but grow the business of its members and customers.

While its structure, services and governance will continue to evolve to serve the market, the fundamental role of the LBMA will not change. And that role is to ensure that the London Bullion market continues to serve the needs of its members and their customers in what is truly a global business. I invite you to engage with the LBMA during this Strategic Review and to help us to build a New LBMA.

The Alchemist is published quarterly by the LBMA. If you would like to contribute an article to the Alchemist or if you require further information please contact Aelred Connelly, London Bullion Market Association, 1-2 Royal Exchange Buildings, Royal Exchange, London EC3V 3LF
Telephone: 020 7796 3067
Fax: 020 7283 0030
Email: aelred.connelly@lbma.org.uk
www.lbma.org.uk

Given the freedom of expression offered to contributors and whilst great care has been taken to ensure that the information contained in the Alchemist is accurate, the LBMA can accept no responsibility for any mistakes, errors or omissions or for any action taken in reliance thereon.

facing facts

William Tankard, Research Director, Precious Metals Mining and Janette Tourney, Research Analyst, Thomson Reuters GFMS.

Producer Hedging: Two Swallows Do Not a Summer Make…

Following the news in mid-2014 that Polyus Gold International had entered into a substantial new hedge position in order to protect revenue during the early stages of its Natalka project, there was a certain amount of speculation that this could herald a return to large-scale gold producer hedging. The Polyus hedge position was significantly larger than any other individual hedge of recent years, covering 88 tonnes (2.83 Moz) of production, and in part employed barrier options, which have not been a component of the producer hedge book since the mid-2000s. This activity represented a marked departure from trend, after several consecutive years of small-scale hedge activity comprising only forward sales and vanilla options.

As a consequence, the last nine months have seen debate within the industry regarding whether or not the Polyus hedge was to be the first manifestation of a more widespread shift towards large-scale hedging by the major gold producers. However, with 2014 now behind us, the wider impact of the Polyus hedge on the global hedge book is more apparent, as are the broader industry trends surrounding producer hedging.

The remainder of 2014 was, for the most part, characterised by further small-scale hedging of a similar magnitude to the activity that has comprised the hedge book over the last few years. In some cases, producers expanded pre-existing hedge positions or chose to extend ongoing forward sales programmes. Some small-scale new hedging was undertaken by development-stage gold companies as a condition of obtaining project finance. The only exception to this 'business-as-usual' hedging activity was the announcement by Fresnillo that they had entered into options contracts covering 47 tonnes (1.52 Moz) of production during the fourth quarter. This covers output from the remaining 44% minority interest in the Penmont Joint Venture, acquired by Fresnillo from Newmont in October 2014.

The combined outcome of the Polyus and Fresnillo hedges, together with the uptick in the number of small-scale hedges announced during the fourth quarter, was that 2014 saw a return to net hedging, amounting to 103 tonnes (3.31 Moz). This was only the second year since 1999 that we have recorded net producer hedging – hence the market speculation that this represents a fundamental shift in sentiment towards hedging of gold production.

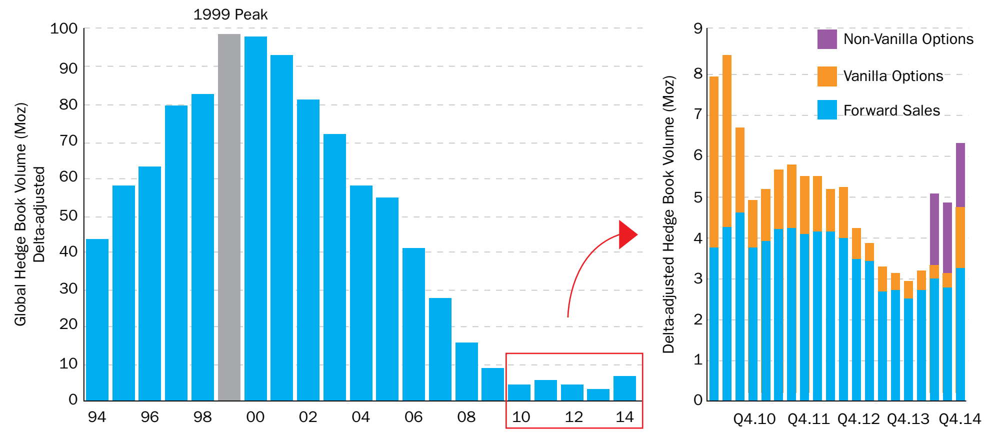
However, it is important to view the result of 2014 within a broader historic context; the absolute size of the global producer hedge book is a small fraction of what it was during the late 1990s and early 2000s. Although the hedge book doubled in size last year, from its historic low of 91 tonnes (2.93 Moz) at end-2013 to 195 tonnes (6.26 Moz) at end-2014, the size at the end of 2014 was only 6% of the hedge book volume at its peak in 1999. Last year's swing to net hedging is therefore not necessarily of much significance when viewed in relation to market events over the past 15 years.

Furthermore, as a proportion of the gold industry, the number of producers with active hedge positions remains relatively small. At the end of 2014, the global producer hedge book consisted of only 42 companies, and although this number has seen slow but steady growth in recent years, many of the new additions to the hedge book have been Australian-based miners taking the opportunity to enter into Australian dollar-denominated hedge contracts at a time when the Aussie gold price has had a boost, courtesy of US dollar strength.

Turning to the factors that may drive a return to large-scale producer hedging, it is also helpful to look to historic events. The last period of widespread hedging by gold producers, during the late 1990s, was followed by a spectacular gold bull run, with painful and long-lasting repercussions for a number of the most prominent hedged gold miners. Neither the miners nor their investors have forgotten this episode, and sentiment therefore remains broadly opposed to hedging, notwithstanding the fact that, after two consecutive years of a sharply falling gold price, the bull run is undeniably over.

Given that the hedge book at the end of 2014 remained relatively modest in size, the magnitude of the deliveries scheduled over the period from 2015 to 2019 is correspondingly small. Consequently, these could be outweighed by a modestly increasing volume of hedging by smaller producers or, alternatively, by only one or two new hedges of the scale seen from Polyus or Fresnillo last year. On the basis of this current scenario, we expect to see net hedging prevail over the next few years, in a continuation of the trend seen in 2014. However, in our opinion, this still does not represent a return to the frenetic hedging activity of the 1990s; rather, we are looking at activity on a smaller scale, with a much more limited capacity to impact on global gold supply-demand dynamics.

Evolution of the Global Hedge Book



Source: GFMS, Thomson Reuters

William Tankard, Research Director, Precious Metals Mining, Thomson Reuters GFMS

Having joined GFMS Ltd as a Metals Analyst in 2005 to cover the mining sector, William was brought across to Thomson Reuters in GFMS' 2011 acquisition and holds the role of Research Director – Precious Metals Mining, within Thomson Reuters' Commodity Research & Forecasts division. He has accountability for the mining team's research output of global production, mining costs and producer hedging research across the precious metals.

Janette Tourney, Research Analyst, Thomson Reuters GFMS

Janette joined Thomson Reuters GFMS in January 2013 as an Analyst within the Mine Economics team with a research remit across the precious metals mining products, specifically Mine Economics, as well as our annual Survey and forecast reports. She previously spent two years as a Mining Analyst at Vicarage Capital and holds a PhD in Geochemistry from the University of Edinburgh.

PAMP®

Produits Artistiques Metaux Precieux

Produits Artistiques Métaux Précieux, better known as PAMP, one of the world's largest, independently-held precious metals refineries, provides a comprehensive range of vertically integrated services - from pick up uf doré from the mine, through to assaying, refining, hedging services and worldwide delivery of bars.

Trust is Precious

The largest selection of bullion bars in the world, from 12.5 - kilogram to 1 - gram bars.
PAMP bars are accepted as 'Good Delivery' by the Swiss National Bank; the London Bullion Market Association (LBMA); the London Platinum and Palladium Market (LPPM), and the markets in New York (COMEX) and Tokyo (TOCOM).
PAMP is also recognized as a deliverable brand of the Chicago Board of Trade (CBOT) and the Dubai Gold and Commodities Exchange (DGCX).

An active proponent of quality excellence throughout the industry, PAMP is further honored as one of only three 'Good Delivery Referees' of the LBMA.

A wide range of coin blanks in gold, silver, platinum and palladium are supplied to the world's most prestigious mints. PAMP is also internationally renowned for a variety of sophisticated precious metals products, such as legal tender coins or medals in color, hologram, bi-metallic, or stone-set varations, or with partial or total gold plating.

PAMP SA
6874 Castel San Pietro | Switzerland

T +41 91 695 04 50 | F +41 91 695 04 51
info@pamp.com | www.pamp.com

An MKS PAMP GROUP Company